RECORDS OF THE PAST

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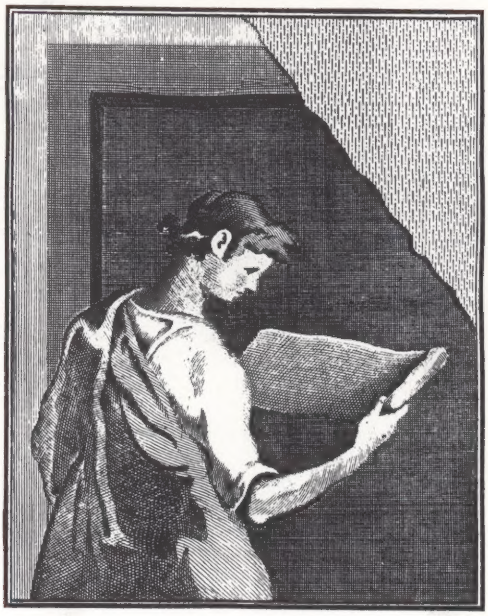

RECORDS OF THE PAST

EDITORS

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FREDERICK BENNETT WRIGHT

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RECORDS OF THE PAST

VOL. X

PART I

BI-MONTHLY

JANUARY-FEBRUARY 1911

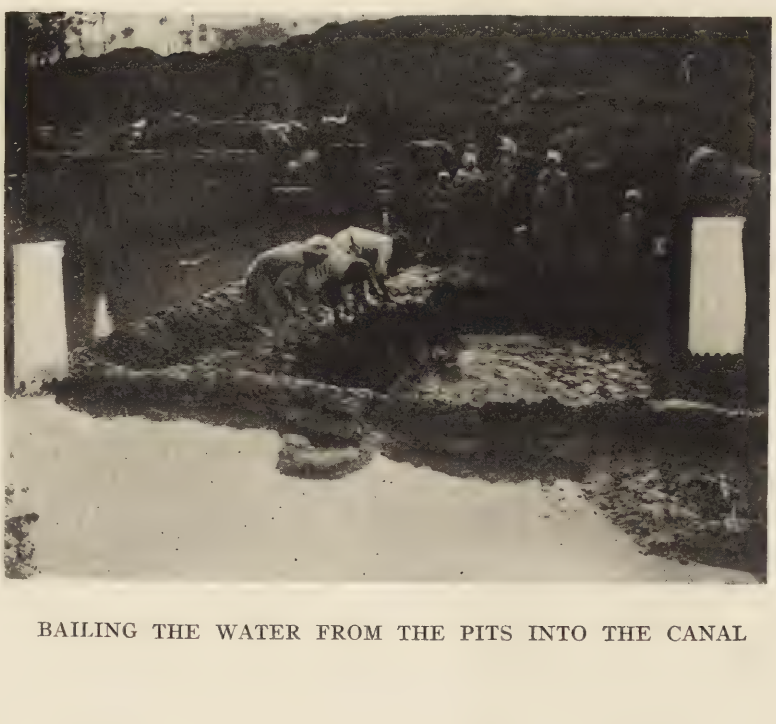
THE EXCAVATION OF MEMPHIS

THIS work has been steadily progressing in the care of the excavators of the Egyptian Research Account. The principal sites worked on, since the last account in the RECORDS OF THE PAST, are the royal palace and the Temple of Ptah. At the north end of the ruins stands a large mound, about 60 ft. high and 400 ft. long. This proves to be the Palace mound; and the topmost building of it was the Palace of Apries—Pharaoh Hophra. The plan shows the entrance at the south side, across a wide fosse, marked the New Broadway. The Old Broadway was an entrance of earlier date to the previous palace. The guard-room, with a trench all round it, was the first room opening on the entrance. Beyond that, on the west, was the kitchen in which the brick fireplaces still remain. To the east lies the door to the *harem* quarter; and opposite that, on the west, is the winter court, which measured 116 ft. by 107 ft., and contained 4 rows of 4 columns, supporting the roof nearly 50 ft. high. Seeking for the foundations, we found that we could not reach them even at 45 ft. beneath the floor. Thus the idea of this part of the palace was a structure 100 ft. high, filled up for 50 ft. with earth and cross-walls to carry the columns, and upon that a hall of columns 50 ft. in height. The ruin of this court is still about 12 ft. high. Beyond the winter court were some halls and work-rooms, and then at the northern end stood the summer court, or *mandara*, which had a row of columns to support a verandah along its south side, about 55 ft. high. Only the capitals of these columns are left, but they show by proportion

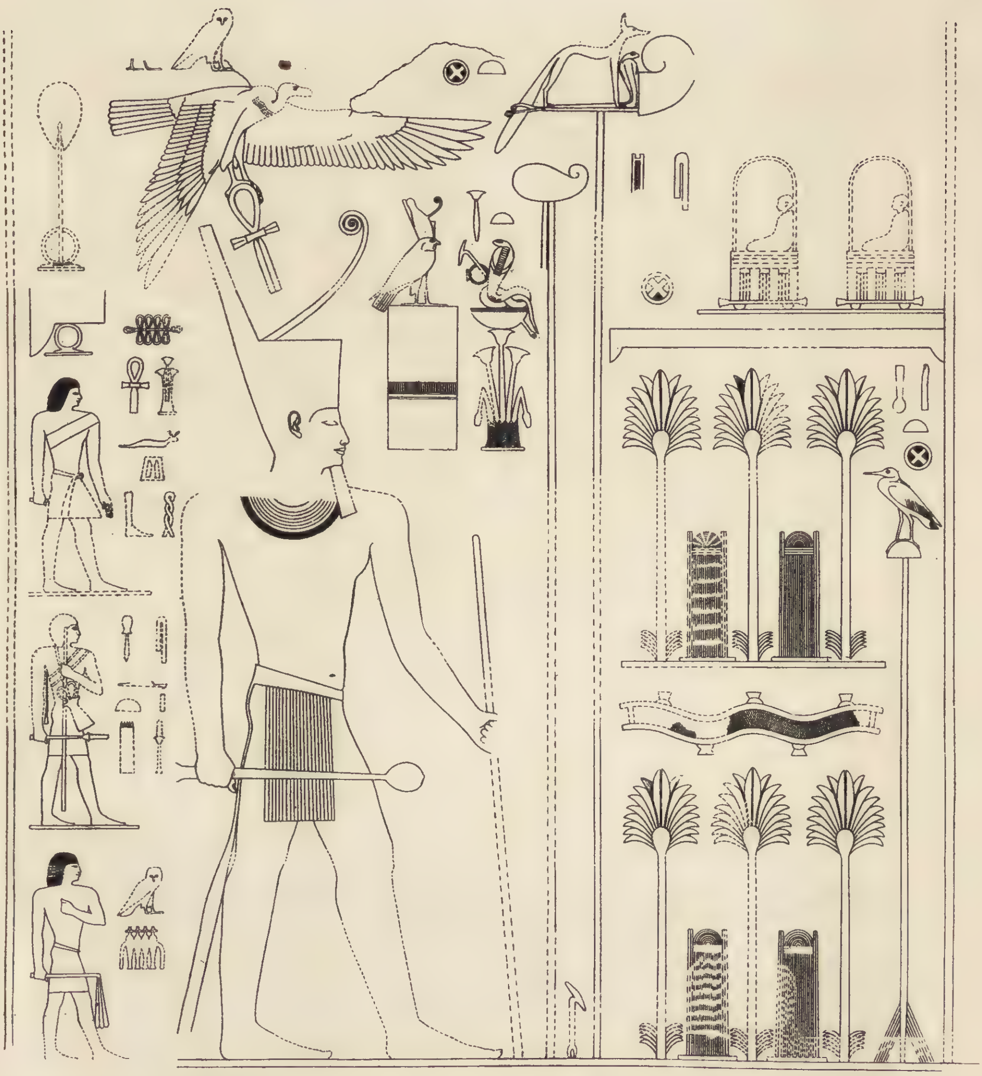
ABOUT 4 FT. DOWN WATER IS REACHED

BEGINNING THE EXCAVATION OF A FIELD AT MEMPHIS

CANAL TO CARRY OFF THE WATER IN THE EXCAVATIONS



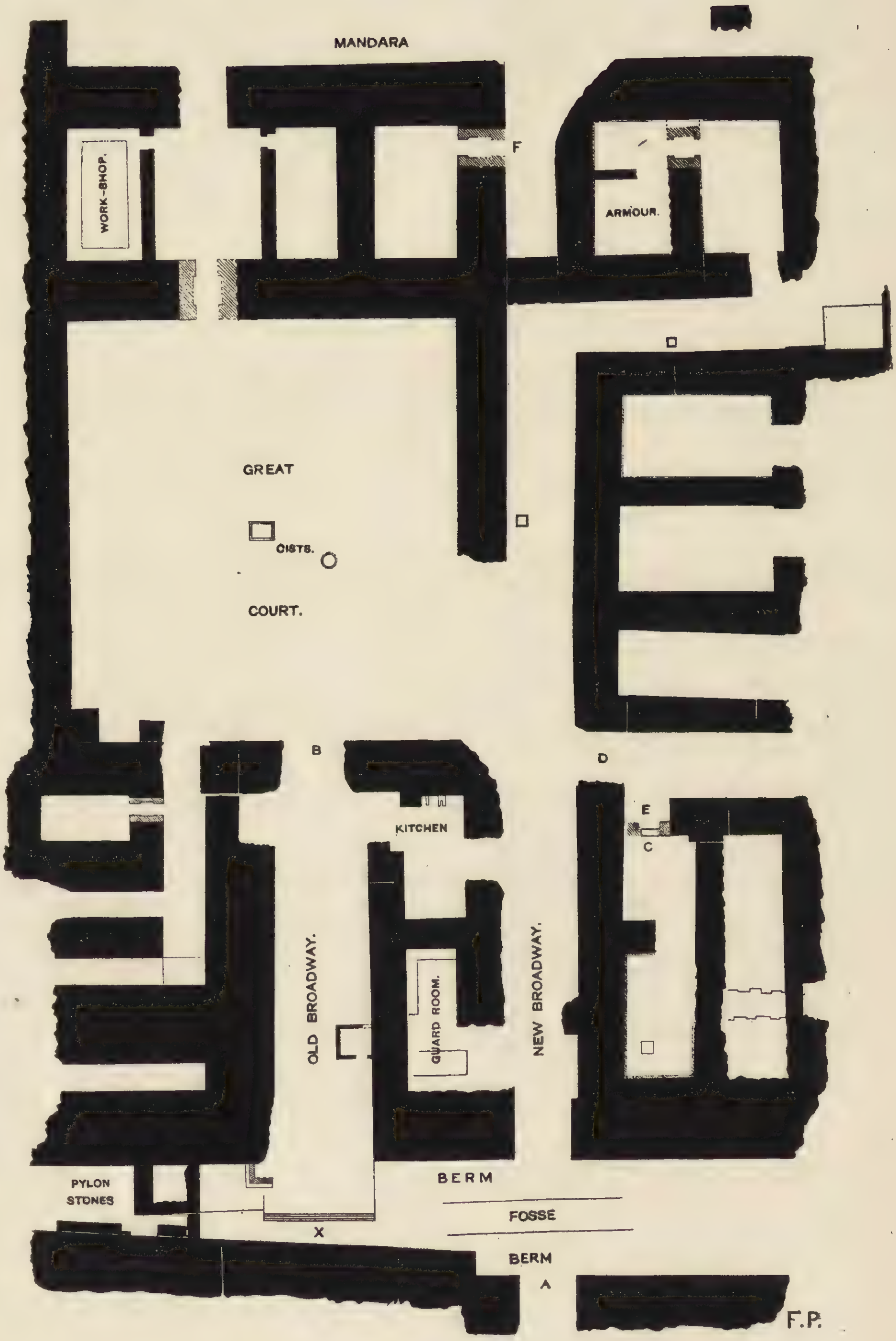
BAILING THE WATER FROM THE PITS INTO THE CANAL



INSTALLATION CEREMONIES OF CROWN PRINCE. HE VISITS THE SACRED LAKE OF HELIOPOLIS

what the scale of the building must have been. The walls are from 14 to 20 ft. thick; and the whole area is about two acres in extent.

This is the first time that the plan of an Egyptian palace has been disclosed, and it is remarkable that its essential parts, the guard-room, kitchen, *harem*, winter court and summer court are all in the same relative positions as these parts in the mansions of the XII dynasty at Kahun, which I planned in 1890. The halls of the *harem* quarter have massive stone floors, two courses thick, and a stone dado round the walls. In the center of the winter court is a stone cist sunk in the floor. It is very accurately cut and has a lid fitting over it. Perhaps it was a safe deposit for the throne when not in use.



PLAN OF PALACE OF APRIES, MEMPHIS

In the fosse, which separated the palace from its approaches on the south, we found, at the west end, the blocks of a great gateway to one of the earlier palaces, probably of the XII dynasty. When these were put together there were 6 scenes, 3 for each side of the gateway. Each scene is nearly 7 ft. square. The subjects refer to the ceremonies of the installation of the Crown Prince as heir to the kingdom. First, he stands with the high officials behind him, and porters bring up the various objects used in the ceremonies. Second, the palanquins of the royal children come into the scene and the festival of the royal hippopotamus is named. Third, the prince dances while the goddess of heaven, Nut, calls him to come. Fourth, he visits the sacred lake of Heliopolis surrounded with palm trees

SILVER CASTING FROM THE FITTINGS OF THE ROYAL PALANQUIN

beneath which are shrines: this ceremony is described elsewhere as performed by Piankhy the Ethiopian when he took the throne of Egypt. Fifth, the prince wears the woolen scarf and carries a long staff, while the people of the town and the country dance before him. Sixth, he visits some other sanctuaries. These scenes give a more complete view of the ceremonies than we have in any other record.

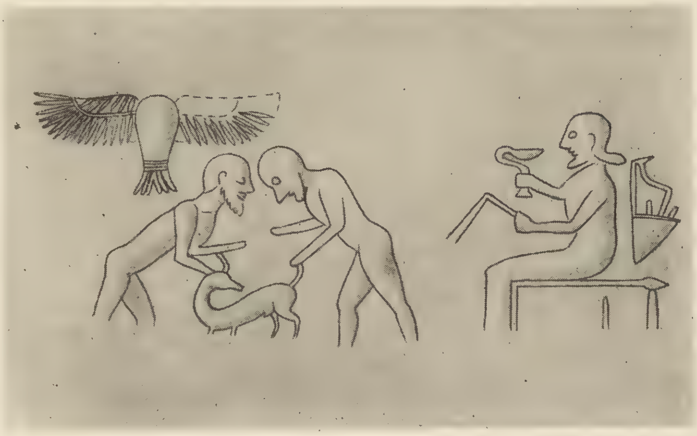
In the palace, many small objects were found. The most striking was a portion of the fittings of the royal palanquin, which had been stolen and buried by a workman in the workshop. It is a massive casting of silver, weighing about a pound, with a head of the goddess Hat-hor, the face of gold, the hair and collar of gold and bronze. The bronze had gone

GREAT COURT OF PALACE OF APRIES, LOOKING NORTH

CAPITALS OF 50 FT. COLUMNS IN NORTH COURT

green, amid which the lines of gold gleam out. Some ivory carving was also found, such as the man with offerings. Large quantities of steel scale armor remained from the corslets of the Persians. Herodotus describes their linen corslets covered with scales like fish, and Ammianus says that the Persians were so completely covered with scale armor that they had only 3 holes, for the eyes and mouth. A fine steel sword, with the ornamental steel-work of the scabbard, was also also found here.

In the fosse of the palace was a layer of seals and labels from parcels, thrown away in the Persian age. The labels are thin slips of wood, inscribed in Aramaic on one side and Demotic on the other. The seals are Egyptian, Persian and Greek, and they give some of the earliest examples of classical gem engraving, as these were of the V century B.C. The most remarkable seal was that of an alliance probably put upon a packet of some state monopoly, such as the realgar from the state mine described by Strabo in Paphlagonia. The subject of these all is that of two men



SEAL OF A KING OF CAPPADOCIA

holding a kid and swearing over it. This is like the oath over the pig on the Samnite coins. One man has the Hittite spread eagle behind him, the other has his king. Behind the king is a bow in a case, a mark of the Euxine region. Probably this is a king of Cappadocia in alliance with the last remnant of the Hittites.

In the temple of Ptah—the metropolitan temple of Egypt—we have at last succeeded in hiring the land and beginning to clear it down to 12 ft. deep, 9 ft. of that being under water. We begin upon a field, cutting into half of it and piling the earth on the other half. Descending about 4 ft. we get into water, which is taken out by pumping day and night, through a canal which runs through the work. Then after clearing to about 5 or 6 ft. down, small pits are sunk for 6 ft. further, baling out water into our canal all the time, each pit to be finished by sunset, and then filled with water, and a fresh pit dug by its side next day. Before leaving a pit the ground is probed with iron rods for 3 ft. deeper, to make sure that no stone lies just below. Thus we search the ground to about 15 ft. deep.

FLINT FLAKES FROM A SMALL TOMB-CHAMBER, MEMPHIS

We found remains of two sanctuaries of quartzite sandstone, one of Amenhotep III, 1400 B.C., the other of Amasis, 550 B.C. The latter gives the best portrait that we have of the king.

The whole site of 50 acres should be searched, doing perhaps a couple of acres each year. Most probably large statues—such as those already found here—will occasionally reward us, and every year a constant supply of discoveries will be obtained.

The foreign quarter has yielded many more of the terra cotta heads of various nationalities. Most of them cannot yet be identified owing to the lack of racial portraiture for comparison. But we can see the Iberian, shown by his low flat head and mutton-chop whiskers, belonging to the an-

IVORY CARVING. MAN WITH OFFERINGS

cient Sardinian and modern Spaniard; the Karian, marked by his helmet crest "like a cock's comb," as Herodotus says; the Hebrew by his characteristic physiognomy; and the Kurd distinguished by the crossed turban (not worn by Semites) and by the type of face.

Besides the work at Memphis, much has been done on other sites. At Thebes a rich and perfect burial of the XVII dynasty was found, with furniture, vases in string nets and fine gold-work on the body. This is the most complete burial ever brought to England, and is of unusual type. The series of pottery of the XI dynasty was also fully worked out from a large cemetery, and published.

PORTRAIT OF KING AMASIS, 550 B.C.

At Meydum the cemetery of the III dynasty was worked out, opening two of the greatest tombs which have been seen for 6000 years. In both of these the body of the great noble had been entirely unfleshed and the bones each wrapped separately in cloth. One of the tombs is the oldest private tomb known; and it is far finer than the adjoining pyramid in its chambers. The roofing blocks are 40 tons' weight each; and the granite sarcophagus—the oldest stone coffin known—weighs $8\frac{1}{2}$ tons, and is dressed flat to within a fiftieth of an inch.

The celebrated sculptured tombs—the oldest known—had been severely injured by antiquity dealers, so by official request we moved the whole of the sculptures to museums. Half are in Cairo, and specimens in Chicago, Boston, New York and Philadelphia. The sculpture of the tomb now in

SCULPTURES DEPICTING THE INSTALLATION OF THE CROWN PRINCE

Cairo is some of the finest known; and it was from this tomb that the celebrated statues came of Rahotep and Nefert, which are among the greatest treasures in the Cairo Museum.

In a small tomb-chamber, a group of flint flakes was found, which can be restored to place, showing the order in which they were struck off.

These discoveries are but a sampling of the results of the work of the School in Egypt now being carried on. The whole results are published yearly in two volumes, each given to subscribers of 5 pounds, averaging about 40 plates to a volume. These volumes are distributed to subscribers through the Smithsonian Institution; and Mr. Frederick B. Wright has most kindly undertaken to receive subscriptions at the office of the RECORDS OF THE PAST. All contributions beyond the $10.00 for the two volumes are counted for a share in the antiquities which are all sent to public museums in the United States as well as in Britain and on the Continent.

W. M. FLINDERS PETRIE.

London, November 21, 1910.

SCULPTURE FROM A TOMB FOUND AT MEMPHIS. NOW AT CAIRO

THE EGYPTIAN RESEARCH ACCOUNT

THE work of the Egyptian Research Account, as carried on by Prof. William Flinders Petrie year by year, is one of the most worthy enterprises in the whole field of archæological research. The work, as described by Prof. Petrie in this issue of the RECORDS OF THE PAST, speaks for itself; it is unnecessary to add anything to that statement. But the progress and results of the work are far from being the whole worthiness of this enterprise. The peculiar attractiveness is in the method and the man, and the man has made the method. Only those who have visited the annual exhibit of the finds made by Professor Petrie at Gower St. College, London, and far better still, the great camp among the palm trees at Mît-Rahina on the site of old Memphis can fully understand how much the method and the man add to the work of the Egyptian Research Account. The opportunities afforded not only to professional Egyptologists but to casual students and travellers who are merely ready to see and hear anything of curious interest, are so unique and refreshing in the dry-as-dust atmosphere of the archæological world that they are irresistible. The great camp at Mît-Rahina has announced that the latch-string is always out and out to all, but only those who, like the writer, have drawn that latch-string know how much the invitation means. Here is one of the greatest research works ever undertaken. It is directed by one who, in experience and in the peculiar skill which experience gives, is unsurpassed by any excavator in the world. The work is carried on in the most systematic and scientific manner, so that everything is measured, studied, compared, counted, photographed and recorded, and then, if movable, distributed to the museums. And yet every part of the work is as open for inspection by the expert Egyptologist or the mere traveller as are the industrial plants of the business world. Zealous guards who warn off every visitor as a possible purloiner of secrets which are so annoying to well-meaning students and travellers at other excavations, are unknown here. The long wait of years for the publication of "The Official Volume in Cloth with Gilt Letters," which confronts, perhaps it were better to say affronts, the eager student and the curious public, confronts no one here. Everything is published year by year. The contributor of a pound to the work is as welcome to see all there is to be seen and to know all there is to be known as the contributor of one hundred pounds, and the traveller who contributes nothing but curiosity is as welcome as either. Professor Petrie is interested in living men as well as dead men, in instructing the present world as well as learning about the past world, interesting and helping people as well as guarding a reputation. The reputation in this case needs no such guarding.

As one who, with no claim whatever upon the distinguished professor's attention, has been the recipient from him of the greatest kindness again and again in London and in Egypt, the writer wishes to bear this grateful tribute to the man and his work. The work of the Egyptian Research

Account under the guidance of Professor Petrie is exactly the kind of work which Americans like to support. Here is a work which can be done but once, could not be better done than Professor Petrie will do it, promises the richest archæological returns, and is conducted in a manner to give the greatest pleasure and satisfaction to the contributors and the public as well as to the learned world.

Mr. Frederick Bennett Wright, one of the Editors of the RECORDS OF THE PAST, has been made an Honorary Secretary for America of the Egyptian Research Account. All subscriptions from this side may be sent through him.

M. G. KYLE.

Philadelphia, Pa.

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PRELIMINARY WORK IN THE EXCAVATION OF CYRENE.—The commissioners in charge of the excavation of Cyrene for the Archæological Institute of America have appointed Richard Norton director in charge of field work with Herbert F. DeCou and Joseph C. Hoppin on the staff. Mr. Armour, one of the commissioners in charge, sent his yacht to the Mediterranean to transport the staff and equipment from Malta.

In May Mr. Norton made a preliminary visit to the field. While in Bengazi he was informed by Arabs that ruins existed at a place called Messa. In June he visited the site. The ruins lie at the edge of the same plateau as those of Cyrene. Mr. Norton says of them:

"The most important spring is in a hollow, surrounded by quantities of square-cut blocks and traces of buildings. The extensive ruins on the high ground west, north and east of the spring include quarries, in which are many rock-cut tombs, large free-standing sarcophagi and built tombs and platforms of buildings. Of the two clearly marked roads one leads north toward the sea, the second leads eastward toward the Sawiya Beda, the Marabout of Sidi Raffa, and so on to Cyrene. The distance from Messa to the fountain of Cyrene is about 15 miles and for the greater part of the way the road is clearly marked either by tombs and buildings at the sides or by the presence of the actual road-bed. There can be no doubt that this was a main highway from Cyrene to the west, and that Messa was an important offshoot of Cyrene. The character of the remains indicates that Messa was a Greek city, and inhabited at least as early as the IV century B.C."

The site is of such importance that it is hoped that the Archæological Institute may secure the right to excavate it in connection with the work at Cyrene.

THE COINS OF ANTONINUS PIUS

First Paper

THE most superficial glance through a series of coins of the Roman Empire will reveal how strikingly the money of any one reign is distinguishable by certain peculiarities in mintage. The change of portrait on the obverse can not alone account for this difference, though that is perhaps the first to engage the attention; and, certainly, that ever shifting progression of faces on Roman Imperial coins presents a fascinating variety, as contrasted against the more prevailing fixedness of our modern national emblems and mottoes. An amazing diversity is also discovered in the Imperial name, for the several Emperors vacillated widely in their choice of titles. The reverses too run a remarkable gamut in style, ranging from colorless allegorical abstractions to a commemorative chronicle of current events.

But, in addition to these general lines of divergence, there are often more minute particularities, dictated by personal whim or affectation, which, as a rule, make the coins of any one Emperor almost as different from those of other reigns as were the characters of those monarchs themselves. It may even be predicated, that the very disposition itself of the monarch is to be read from his money. Domitian's cowardice is stamped in his *bulla*; his hypocrisy in the title Censor Perpetuus: Elagabalus bears witness to his bigotry by the star in the field: the pious reforms of Severus Alexander are published in his personifications of the virtues: the Constantines attest the new religion by the *labarum* and the monogram of Christ.

It is an interesting quest, therefore, in passing down the series in order of chronology to discover the differentiating features in the coinage of each new reign. The first sensation is usually one of negation,—the characteristics of the previous mintages are first missed, before those of the new are definitely comprehended. This is apt to be one's impression, for instance, in the transition from coins of Trajan and Hadrian, both of them marked by very prominent individuality, to the coins of Antoninus Pius, which are next in succession. We at once note the absence of what had been so conspicuous in the coinage of the last two reigns. Trajan had revelled in the cumulation of *cognomina* that were awarded chiefly in honor of his conquests, till the obverse of even the 'first bronzes' could scarcely contain, in fine lettering withal, the triumphant procession of *Optimus Germanicus Dacicus Parthicus*. But, as 24 years of comparative tranquillity fell to the lot of Antoninus, the latter's money was accordingly spared the incumbrance of those many additional names which his predecessors as well as his immediate successors wrested from the field of war. As a consequence, his coins are rather attractive for the simplicity of their legends.

Another element, which had been one of the distinctive features of the reign just preceding, is now also to be missed in the coins of Antoninus Pius. Hadrian had been a restless traveler, ceaselessly journeying from

one remote Province of the Empire to its antipode. The result was a harvest, all over the Roman world, of ADVENTVS and RESTITVTOR coins. In contrast, Antoninus's long reign of almost a quarter of a century was marked by but one distant excursion,—and that one a dispute among historians. No Province seems to have commemorated in coinage an *adventus* from the Pius Augustus, or to have lauded him as its 'Restorer.'

Yet it was the absence of just these same features which gave to Antoninus the opportunity of developing numismatic styles that were all his own. Far from being rated by what they do not possess, the coins of this reign are as marked by particular traits as any in the Imperial series.

It was the transit, across the writer's library-table, of some scattered coins of Antoninus, that tempted him to a study of the entire period. With Eckhel's *Doctrina* for guidance and a few other handbooks for assistance, it was his first purpose to place the several pieces in their proper relation chronologically. But, under the stimulus of such research, the task grew with surprising momentum. The issue was the present series of papers, for which neither exhaustion of topic nor priority in treatment can with fairness be claimed. Let them be termed, as they really are, a study of Antoninus's money in order of time, in which the implicit leading of the inductive method, as pursued by the writer himself, is faithfully reproduced. Each new feature, as it chances to appear in any one coin, has been despatched at once, in order that its recurrence in succeeding pieces may need no farther attention. The earlier periods have thus been accorded a rather disproportionate amount of space, but with the conviction that this should be conducive to a more intelligent recognition of the subsequent issues.

The several coins shown in the following pages require no other apology than that they were a little handful of Antonine's money that chanced to come under observation. Possessing no particular merit,—indeed their defects are obvious, one may readily believe that they were not such as would be selected solely on account of rarity or beauty. In comparison with the coins of the Early Principate exemplified in a previous issue of RECORDS OF THE PAST,[1] these 8 from the reign of Antoninus Pius at once revealed rather a diminution in perfection and symmetry. Some of the pieces were thick and clumsy in appearance, many of them quite out of the circular. One was almost a square, with simply the corners rounded off. Generally speaking, they lacked the *finesse* and attractiveness of, for instance, Trajan's money. A debaseness in metal also evidently attended this decadence in art. Neither were they in good state of preservation. Several were so defaced in one particular or another, that it was problematic to place them successfully, though enough was usually in evidence, to identify them as coins of Antoninus. When the legend was deficient, it was the Emperor's portrait that afforded the clue,—for Antoninus looks the same throughout,—or, when the portrait was dim, the legend in its turn came to the rescue. Yet, with all their blemishes, the group, as herein reproduced, may be of service in illustrating the coinage of the period.

It was on the 25th of February, 138 A.D., following the death of Ælius Verus the heir-presumptive, that Hadrian, with exemplary wisdom,

[1] Volume IX, Part I, January-February, 1910, pp. 42 and 43.

promoted Titus Aurelius Antoninus from his cabinet of privy advisers to be his successor. This system of adoption or of association in the Imperial offices which had thus far become an unwritten law of the Principate, often imparted great complexity to the Imperial coinage, for the privileges of coining money were shared in common by the joint Emperors. When a considerable period chanced to elapse before the assumption of sole power by the junior Imperator, as happened with the younger Flavians or with Antoninus's own successor, Marcus Aurelius, an extended system of preliminary mintages naturally resulted before a more independent coinage was made possible by the death of the elder sovereign. Trajan, Hadrian, and Antoninus, all three in turn, were fated to succeed their adoptive fathers very shortly after their association in the Principate, so that, in their cases, we have no very prolonged study of what we might term prefatory coins.

But, brief as was his term of Caesarship,—hardly more than 4 months, from March of 138 to the following July, Antoninus's coinage must be reckoned as beginning with a group of gold and silver coins which he issued during that time, accompanied by corresponding bronzes from the Senatorial mint.

On all these, Antoninus was represented with head bare, for the Junior Emperors of this era were not uniformly accorded the privileges of the several crowns. On his own private coins, the obverse bore the legend:[2]

IMP(erator) . T(itvs) . AEL(ivs) . CAES(ar) . ANTONINUS.

In several respects this was a style of legend never before seen on Roman coins, though this should be no surprise, as each successive Imperator was almost certain to introduce some innovation or other in that particular. Not that any one individual element in this formula was new,—it was the combination and placement that entailed variations from precedent. This will be best appreciated, if each factor be first severally discussed.

As to the origin of the several names that were here involved, the *prænomen*, Titus, and the *cognomen*, Antoninus, were inheritances by ancestral right. All the rest were new acquisitions by virtue of adoption. Taken as a whole, they still form merely the personal name of the prince and heir, and include no strictly official title. It is true that Imperator was originally a title, but the practice of the last century had reduced it to the force of a royal *prænomen*, as its position in the list here shows. Not only does it occupy the first place, where we always look for that portion of the Roman name, but it is followed immediately by Titus, the ordinary *prænomen*. Though still implying the rank of a Commander-in-Chief in the armies, Imperator was now more a matter of succession, such as are the modern titles Prince, or Count, or Duke, which no longer carry their original intent. Yet, side by side with this modified connotation, there was an occasional return to the old-time usage, illustration of which will be found in some of the later coins of this same reign.

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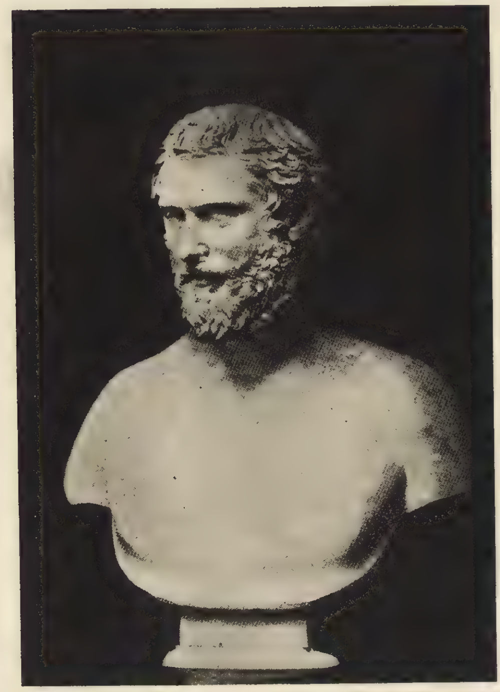
[2] Eckhel, p. 2, A. Unless otherwise designated, the references to Eckhel imply Vol. VII. Schneider, *Das Alte Rom*, Taf. XII, 5 [after Imhoot-Blumer, Taf. II, 38] illustrates the obverse of one of these gold coins.



ANTONINUS PIUS. COPENHAGEN MUSEUM

As a result of the acquisition of civic and military honors, the Emperors usually suffered their inherited family names to be largely crowded out of their monetary inscriptions. One family name, such as Domitian or Hadrian, generally sufficed. In this curtailment, the *prænomen* suffered most of all, for it was not an indispensible factor in the throne-name. Its chief usefulness was from a differentiating view-point, so that it was rarely employed under the Principate, save to distinguish the several members of the reigning dynasty, as had been necessary with the Caesares Tiberius and Gaius (Caligula). Its presence here in Antoninus's formula indicates a wish on the part of the new heir to be distinguished from the late prince, whose adoptive name had also been Ælius, as well as from his own adopted son, who now became Marcus Ælius. Ordinarily an Ælian was an Ælian without need of prefix, but Titus Ælius must now be spared confusion in his formal inscriptions, especially since coins of the deceased Lucius Ælius were still in circulation. Thus we find Antoninus's coins for a short time after his adoption, and sporadically afterwards, bearing the distinctive *prænomen*. It was a feature that had not appeared upon the imperial coinage since the days of the Emperor Titus, whose name throughout was that of his father, Vespasian.

The *nomen*, Ælius, and especially its position in the formula, entailed the widest departure from the established styles. Previous Emperors had varied much in their attitude toward the family-*nomen*. The majority had habitually suppressed it. Cocceius and Ulpius and Ælius do not occur

in inscriptions upon money or monuments of the three preceding Imperators. But the late crown-prince had renewed the practice, last employed by Vitellius, three-quarters of a century earlier, of including the *nomen*, and Antoninus now followed his example, especially, in some of his longer formulæ, as here evidenced in these earliest coins.

Since the days when the great Dictator first gave the name Caesar a significance, the latter had already passed through a variety of usages, prophetic of yet farther adaptations in subsequent centuries. Politically and socially, the Emperors were heirs of the Caesars, though the divine blood of the originals had long since filtered out. The name was by this time tacitly accepted as the inheritance of the throne and was seldom omitted from the fuller and more formal crown-title. Its position was, however, a subordinate one. For instance, it was not commonly included unless the formula began with Imperator, which, in the omission of the family *prœnomen*, it most frequently followed, as witnessed in coins of the preceding reigns since Vespasian's time. But the family *prœnomen*, when used, was ordinarily placed between Imperator and Caesar,—such had been the practice of Titus Vespasian.

Thus far, in the development of his formula, Antoninus had abundant examples to follow; but, in introducing the *nomen* too at this point, in the stead of the more usual *cognomen*, a third element was thereby allowed to take precedence over Caesar, while the *cognomen*, though following Caesar, was at the same time given prominence over it by its very position, unabbreviated, at the end of the list. The evolution of the legend into the style which Antoninus here used, may be illustrated from the following formulæ of three several Emperors:

IMP . CAESAR . *VESPASIANVS.* AVG.
IMP . *TITVS* . CAES . VESPASIAN . AVG . P . M.
IMP . T . AEL . CAES . *ANTONINVS.*

Yet the above formula did not become a fixed practice with Antoninus, for we shall find several instances, even with the family *prœnomen*, of a return to the old grouping that had been so general under the Flavians and Trajan.

Since the times of the Julian-Claudian House, when the name Caesar was still a family *cognomen*, Galba had been the only Emperor in the past who had used all three portions of his family name in any one numismatic formula. But Galba had arranged his longer lists quite differently, always keeping his inherited names unseparated, either placing them in an unbroken group between Imperator and Caesar, thus: the Imperator Servius Sulpicius Galba Augustus, with Tribunician Power, or placing Imperator and Caesar together at the close, thus:

SERV . SVLP . GALBA . IMP . CAESAR . AVG . TR . P.

In short, it is quite evident that sequence in the elements of the royal 'cartouche' was a principle never rigidly insisted upon. Some Emperors, like Commodus, went to great lengths in the flexibility which they admitted. Antoninus seems to have observed a fair mean.

The shortened form ÆL. rather calls for comment. Epigraphic custom had usually kept the *nomina* intact, permitting their abbreviation only under stress of necessity. But the narrow compass of a coin had long since broken down all such compunctions, demanding curtailment that would be unusual otherwise. There need be no surprise in finding ÆL. for ÆLIVS here, for the consular coins of the Republic had made forms like POM. for POMPEIVS, and TER. for TERENTIVS, and VAL. for VALERIVS, as common as the coins themselves. As few of the Emperors had employed the *nomen* at all, there are accordingly fewer examples of abbreviation on Imperial coins, though Claudius and Nero both emplyed CLAVD., while Galba countenanced SVLP. and other forms.

But in his attitude toward the *cognomen*, Antoninus was strikingly persistent. This one portion of his name he never suffered to be abridged. Not a single coin bears such a form as ANT. or ANTON., though he himself consented to HADR., while the Flavian Emperors had used VESP. and DOMIT. Even ANTONIN., after the analogy of TRAIAN. and HADRIAN., *i.e.*, with simply the curtailment of the case ending *-us*, might have been expected: but not so,—it is ANTONINVS throughout, without a single exception, a consistency hitherto unparalleled in Imperial coinage and seldom equalled subsequently.

By reference to their reverses, these gold and silver coins of the Caesar Antoninus, whose obverses have just been under discussion, fall into two general classes, though the second may be considered an extension of the first. The two types, it will be found, were very natural outgrowths of the Dual Principate and the system it entailed.

When the obverse of a coin contained merely the personal name of the Emperor, as do all these earlier coins of Antoninus, a very common type of reverse, throughout the whole Imperial series, involved a supplemental formula detailing the more official titles. As the Tribunicial Power was renewed annually, while the Consulship was claimed by the Imperators just often enough not to make it a continuous office with them, it may be observed that the enumeration of the repeated holdings on either obverse or reverse had the effect of imparting to that face of the coin a semblance of dating. Yet the intent to date a coin in so doing seems not to have been primal; it was rather more incidental. Since, from the second year of his Imperium, Antoninus all but ignored the number of his Tribuneships and yet, meanwhile, repeated his last holding of the Consulship for 4 years in succession, we may seriously question whether, after all, there was so much a wish to designate the year of the mintage, as to indicate the Imperial honors.

In conformity with this system of balance in the list of names and titles, we are prepared to find on the reverses of these first coins of Antoninus the following inscription:

TRIB(vnicia) . POT(estate) . CO(n)S(vl) .

i.e., 'Invested with the Tribunicial Power, Consul.'

Some of these reverses have the legend PIETAS prefixed, thus form-

ing the second class aforementioned.[3] The central device of these latter is a woman, the personification of Piety, approaching an altar on her right, toward which she is extending grains of incense in her right hand. In this figure of Piety, which often recurs upon coins of this reign, we have, thus early, a premonition of that epithet which was to cling so tenaciously to Antoninus and have an ineradicable influence upon generations of princes to come. The allegory of Piety was, so to speak, the collotype of this goodly great man.

Antoninus's bill of adoption had included association in the Tribunician Power and in the Consulship as Pro-Consul. These comprised the sum total of civic honors that could be possessed by the junior Imperator at this era. So, from these reverses, Antoninus may readily be recognized as the junior sovereign, not so much because of the titles there given him, as because of the absence of others; for all the names and titles thus far employed on his coins, on both obverse and reverse, were also factors in his later and complete formulæ as sole Imperator. But there were other offices as yet withheld from him,—higher powers, the perquisites of the elder Emperor, which Hadrian accordingly reserved for himself. Such were the titles of Augustus,[4] Pater Patriae, and Pontifex Maximus, some or all of which, at this period of history, appear almost invariably on coins of the senior or sole Emperor, but never on those of the junior. The absence of these, the most important titles of all, relegate any coin to that period of apprenticeship, when the Caesar was still only associate and heir.

In the case of Antoninus there was another feature which indubitably characterizes his later as distinguished from his earlier coins,—the *cognomen* Pius, which he was soon to receive and never thereafter to omit from his monetary inscriptions.

The order in which the two honors are listed on the reverse is most suggestive. There could be no sureer evidence that the old régime had passed away,—the Consulship had ceased to be the climax of civic authority. Its value under the Empire was chiefly honorary. The Emperors themselves were rather indifferent as to its possession. On the other hand, the Tribunician Power was indispensible to the dignity and inviolability of the crown. The much abused office of the Tribune of the Republic was now advanced to a rank above that of the Consul and hence takes precedence in titular language whenever the two chance to be expressed together. Whether Antoninus himself wholly concurred with this attitude may be questioned. Some of his subsequent coins seem to illustrate a skepticism on his part as to the wisdom of the prevailing sentiment.

It will be noticed that no numeral accompanies the titles on these coins now under discussion. The first holdings of office were never numbered, for the very obvious reason that a second term ever 'lies on the knees of the gods.' On the other hand, the numerals were not always employed

[3] One gold issue of this latter type shortened the abbreviation TRIB . to TR. Cf. Ackerman, p. 258, no. 39. References to Ackerman, unless specifically mentioned, imply Vol. 1.

[4] I find that Egbert's *Latin Inscriptions*, p. 133, gives to Antoninus the rank of Augustus contemporaneously with his adoption. No coin, however, shows the presence of AVG . in company with TR . POT . COS., without also PONT . MAX. The testimony of numismatics is, therefore, that the title AVG., together with that of PONT . MAX., was conferred on his accession as sole Imperator.

OBVERSE
COINS OF ANTONINUS PIUS

REVERSE
COINS OF ANTONINUS PIUS

by the Emperors, even in the case of extended tenure,—for example, Antoninus himself did not begin to number his Tribuneships consecutively until the Eleventh Year. Nevertheless, the absence of the numerals here, together with that of the higher Imperial offices, is rather conclusive evidence for the dating of these coins during the months of Caesarship.

The COS., however, is misleading. Not only had Antoninus held the Consulship once before,—that had been in 120 A.D., 18 years previous, but, strictly speaking, he was not even now Consul. His proper title was Pro-Consul,—conveying simply the idea that he was invested with the powers of Consul, though not actually holding the office of Consul. The suddenness of his appointment had not permitted the usual formalities of nomination by the Emperor and subsequent ratification in the prescribed way. Moreover, the Consuls for the year had no doubt long since been scheduled and the program could not with propriety be interrupted. If he were now Consul in the regular style, he would have been termed COS. II. on these coins, for, when the Emperors expressed their Consulships at all, they always reckoned also those which they had served previous to their ascension. Thus the Emperor Titus had been 7 times Consul during the reign of his father, so that, when Consul again during his own Principate, he was termed COS .VIII. Again, on the other hand, Antoninus can not here be considered as Consul Elect, for, a little later, he was formally elected for an actual second term and thenceforward, until he entered upon that year of office, in January of 139, he appeared upon his coins as CO(n)S(vl) . DES(ignatvs) . II.

While the Senate had in their keeping the coinage of brass and copper, it may be questioned whether their rights were entirely unlimited. There is too much suggestion that they were not always independent in their choice of types, devices, and legends. We may safely infer that individual Emperors often, if not regularly, submitted designs for the Senatorial mintages. At any rate, that body evinced respect for the designs that the Emperors followed in their private coinage. The gold and silver coins, as a frequent result, had their reflection in the brass pieces. For every *aureus* or *denarius*, there could generally be found a *sestertius* or a *dupondius*. While this was not by any means a regularity, it will be interesting in our study of Antoninus's coins to note how frequently the Imperial and Senatorial mintages go in pairs. The presumption, in such instances, is of course plausible, that the Senate modeled their new issue of bronzes after the last emanation from the Emperor's own private mint.

So, in these first coins of Antoninus, there were bronze pieces of the first and second size that corresponded with the gold and silver money just described. They fall, by virtue of their reverses, into the same groups, *i.e.*, with and without PIETAS. The reverses have the same devices, while the obverses carry the same portrait of Antoninus with the bared head. The formula of the obverse, wherein we might look for surer test, is also the same, with the exception that the larger size of these brass coins made it possible to employ the unabridged AELIVS . CAESAR.[5]

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[5] Eckhel, p. 2, B.

But, side by side with these, there was one group of 'middle bronzes' in which the Senate was certainly independent of any present model from among the coins of rarer metals. The obverse is identical with that of all the others, but the reverse seems to prove the coin a memorial from the Senate in celebration of the new Caesar's adoption. In conformity with a practice of numismatic courtesy that often passed between associated Emperors, the obverse did honor to Antoninus the Caesar, while the reverse conveyed the same compliment to the elder Imperator, bearing the head of Hadrian, with the inscription:

HADRIANVS . AVG(vstvs) . CO(n)S(vl) . III . P(ater) . P(atriae) .[6]

In some, the formula was simply:

HADRIANVS . AVGVSTVS .[7]

This is clearly not a coin of the CONSECRATIO or DIVVS type. It is the living Hadrian who is here commemorated, for, agreeable to the system regulating the distribution of Imperial offices and restricting the higher titles to the senior associate, he is here styled Augustus and Father of the Country, to which others could have been added.

If farther argument were needed for the dating of the coins thus far detailed, it is to be found in the identity of obverses. Since the obverse of these pieces in honor of Hadrian is the same as that of the PIETAS coins and of those with the unnumeraled reverses, the same date must unquestionably be assigned to all,—a period anterior to the death of Hadrian.

The end had come swiftly,—10 July, saw Antoninus sole Emperor and invested, perhaps immediately, with the titles Augustus and Pontifex Maximus. The first had become the indispensible property of the sole Princeps,—'His Majesty,' as it were; the latter designated him as Chief Pontiff, head of the state religion of Rome. The eulogistic title of Pater Patriae had not yet become an inherent accompaniment of accession. In Antoninus's case, it seems to have been deferred a full half-year at least.

From the moment of his ascension, until the climax was reached, sometime in 139, in the complimentary title 'Father of His Country,' Antoninus's coins reveal a steady increase in honors. Some silver coins from the new Augustus's own mint very shortly attested the advancement of the erstwhile Caesar.[8] These bore on their obverse the echo of his earlier silver coins,—the same bared head, the identical formula with the same abbreviations,—the addition of AVG . alone indicating, as far as could be read from the obverse, that there had been any change whatever in the imperial régime.

The two new honors were divided between the faces of these silver coins. The obverse had closed its formula with Augustus; we may now conceive of the reverse as continuing the name with:

PONT(ifex) . MAX(imvs) . TR(ibvnicia) . POT(estate) . CO(n)S(vl).

It is identical with the inscription of the Caesar coins, with the exception

[6] Ackerman, p. 270, no. 13.

[7] Ackerman, p. 270, no. 12. Eckhel does not note this form. Patin, p. 216, illustrates both faces of this latter issue.

[8] Eckhel, p. 3.

that the sacerdotal honor is prefixed and the second title has a shorter abbreviation, though this had been exemplified in a few gold coins of the earlier issues. The choice of abbreviations was always largely determined by the spacing that was required. In this instance, the addition of PONT. MAX . rather demanded that the former TRIB . POT . should now become TR . POT . Farther accretions in the list of titles were soon to reduce it to the more frequent form TR . P .

As for PONT . MAX ., Antoninus used the longer form but seldom, doubtless prompted to do so in this case by the general brevity of the formula. This particular issue and a later brass medallion in which PONT . MAX . is the sole inscription,[9] are apparently the only examples of its use in this reign. In coins soon to be noted, where the formulæ were somewhat longer, Antoninus had recourse to the P. M., so familiar upon coins of the preceding reigns.

The regular position of the priestly title was a place of honor, immediately following the personal names and having precedence over the other official titles. But custom had been quite unsettled as to whether obverse or reverse should own it. The same Imperator would employ it now upon one face of the coin and now upon the other, so that any apparent neglect in one coin, if indeed a place on the reverse was deemed a lesser honor, would be counterbalanced by respectful attitude in another. It is surprising to find that Antoninus never accorded it a place on the obverse, but,—a still more remarkable fact this,—after the second year of his Principate, he ceased to employ the title altogether.

Evidently, the elevation to the sole Imperatorship entailed no interruption in either the Tribunicial or Pro-Consular office. These may have been continued by formal enactment,—at any rate they were not renewed, for again the absence of the numerals is conclusive proof that this was merely a continuation of the first holding.

A second issue of silver coins either was contemporaneous with those last mentioned, or shortly followed. The reverses[10] are identical in legend with those just described, but the obverses introduce the first variation in the language of the Emperor's name. The *prænomen* Titus is omitted, while Caesar leaps over the *nomen* Ælius, to take place after Imperator, resulting in the following unprecedented formula:

IMP . CAES . AEL . ANTONINVS . AVG .

The *prænomen* was of course becoming less and less essential, the farther removed in time was the death of the former heir-apparent. Antoninus, however, after having once begun its use, never wholly relinquished it, but would return to it after an interval. The omission of Titus, therefore, is not a radical matter, while the combination IMP . CAES., as an introductory group, was long established. But the latter had always before been followed by *cognomina*, either singly or in combination, such as Domit-

[9] Ackerman, p. 262, no. 18.

[10] One of the notable silver coins with this style of reverse represented a figure standing, holding a bow and arrow,—Ackerman, p. 258, no. 40. As Ackerman's lists include reverses only, this last coin may belong to either one of the two silver issues.

ianus or Nerva Traianus. Antoninus was thus the first to use the *nomen* in such a position in the formula.

The ascription of all these silver coins to the first few months of sole Imperium can not be questioned. In addition to the argument from the absence of the numerals, Pater Patriae and, above all, Pius are not yet in evidence. From the time when these latter were severally awarded him, Antoninus never omitted them.

These silver pieces were not accompanied, it would seem, by corresponding mintages from the Senate. Either the issue of the Caesar bronzes had been quite recent, or another honor was now anticipated, which the Senate contemplated being first in the field to celebrate.

It was of course to be expected that the new Emperor would, at the earliest possible opportunity, be one of the two Consuls from whom a new year should receive its name. Shortly after his accession, therefore, Antoninus must either have sanctioned Hadrian's nominations for the ensuing year, if the latter had made any before his death, or have empaneled a fresh list of his own. In either case, deference to established custom and the dignity of the throne dictated the placing of his own name at the head of the list as ranking Consul for January of 139 A.D. As soon as the formal ratification could be procured, Antoninus became Consul Designatus II., *i.e.*, Consul Elect for the Second Time.

The reverse of Coin 1 (Plate II), though itself later in order of time, chances to be identical with that of the 'first brass' which the Senate now issued, and through which they became sole heralds, numismatically, of the new honor, for no farther coins of the higher denominations seem to have been issued by the Emperor himself until after the acceptance of still another title. The next coins from the Emperor's own mint were the richer by two honors at once.

The obverse of this 'first brass' followed the legend of the last silver issue, though with AELIVS written in full. The reverse of the illustrated coin has lost its legend, but comparison shows it to have been:

P(ontifex) . M(aximvs) . TR(ibvnicia) . POT(estate) . CO(n)S(vl) . DES(ignatvs) . II.

The device, however, is rather more apparent,—a woman, standing, holding a branch in her right hand, and resting a cornucopia in the hollow of her left arm.[11]

Just when the name Pius was first applied, and whether by formal decree from the first, or whether legislative enactment followed a popular acclamation, are still disputed points. There is diversity of opinion as to whether Antoninus acquired the name while still the adopted son of Hadrian,—and the PIETAS coins of his Caesarship period rather bear out this view,—or as a result of filial affection demonstrated after the death of Hadrian, or in honor of his general reputation for gentleness and benevolence. The study of numismatics has at least proved that the name did not become formally a fixture until after Antoninus had become Consul Designatus II., for no coins are extant in which PIVS appears with COS.

[11] Eckhel, p. 3.

alone, or without AVG. also. The appellation, if indeed it had been freely used before, was established by decree of the Senate and subsequent to the death of Hadrian.

The name and its employment by Antoninus strongly suggest Trajan and his epithet Optimus, which was prized by its possessor as second only to that of Augustus. And now, Trajan's grandson appropriated Pius almost to the exclusion of all other parts of his name. Once adopted, it was never omitted. History knows the Emperor himself, not as Antoninus, but as Antoninus Pius, a distinction which posterity has denied to Trajan Optimus. Later Emperors, in imitation of the first-named Pius, coveted the designation, until it became a sort of appanage of the Imperial name, so regularly used as eventually to bring upon it the fate of all commonplaces,—abbreviation. The combination P.F., *i.e.*, PIVS . FELIX, 'the Pious and Fortunate,' came to be as constant a factor in the throne-title of the III and IV centuries as are H.R.H. in the court terminology of England.

There were many mintages of various types in both gold and silver, during the latter half of 138, all of which bore practically the same legend, all containing the name Pius. In these coins of Antoninus's own mintage, there were some in which the Emperor clung to the stereotyped portrait which had been current since the days of his adoption. But it is interesting to note, that, contemporaneously with the acceptance of the name Pius, there now appeared other coins of this same group in which he was represented as laureated. One is inclined to accept this laurel crown as a matter of course, for, since that decree of the Senate, long, long ago, when the first Julius was awarded the special distinction of wearing the *corona laurea*, succeeding Imperators had appropriated that same privilege with rather persistent uniformity. The laurel crown, as the Imperial coinage attests, came to vie with the purple as a symbol of sovereignty. Indeed, after the Principate became well established, a bared head of the reigning Augustus was a rarity, except in a very few coins of the costlier metals and occasional pieces in honor of deification.

But Nero's bold precedent in authorizing the use of the radiated crown on his own coins and thus anticipating the prerogatives of apotheosis, had introduced a divergent possibility, of which his successors for almost a century had not been slow to take advantage. The 'middle bronzes' eventually divided the honors rather evenly between the two forms of coronal head-dress. Certainly the practice of the Flavian Imperators and of Trajan had been to saction the *corona radiata* quite as often as the laurel in the brass coinage of their reigns.

Hadrian was the first to make any marked deviation from the prevailing custom. An Emperor who could wander over the world with uncovered head as he did, might be expected, when he sat for his portrait, to look upon the crown, whether radiated or laurel, as a non-essential and so to discard it on occasion. A few of his own coins, therefore, as well as of those struck by the Senate, represent him with head bare. Of Hadrian's 'middle bronzes,' there is perhaps the usual proportion in the two styles of crown.

Antoninus, however, pressed this revolt against the established etiquette of numismatics a great deal farther. It seems altogether in keeping with this prince of unassuming dignity, that he should regard the crown even less a necessary adornment than had his eccentric predecessor. The coinage portraits of Antoninus with bared head are therefore numerous, in every metal and of every size and style. The *caput nudum* invaded even the province of the 'middle brass' and asserted itself side by side with the two crowns.

When constrained to choose between crowns, Antoninus's rather democratic tendencies seem to have dictated a preference for the laurel. His laureated coins noticeably outnumber those with *caput radiatum.* Reproductions of his coins in the popular hand-books are so generally those with bare-head or with the laurel, that one rather hesitates to think of Antoninus in the radiated crown.

Thus it is not wholly by chance, that the 8 coins illustrated in this series of papers present Antoninus laureated, although another group, even a smaller group, might contain some portraits of the Emperor in the radiated crown, or rather without crown at all. The group is at least significant as showing that Antoninus, if crowned, preferred the laurel.[12]

The legend on the obverse of these last-mentioned issues returns to the earlier formula with the *prœnomen,* but contains an important variant in the interpolation of the adoptive name Hadrianus, which is given a place just preceding the *cognomen.* The inscription thus reads:

IMP . T . AEL . CAES . HADRI . ANTONINVS.

In some, the abbreviation HADRI drops the final I.[13]

It is again significant, as heretofore remarked, that the Emperor consented to the abbreviation of this adoptive name, as well as of all his other names, except his own *cognomen* and Pius. On the whole, Antoninus's attitude toward his adoptive *cognomen* contrasts rather strongly with that of Trajan and Hadrian toward theirs. Both the latter had largely employed them, especially toward the beginning of their reigns, as if expressive of their right to the throne by adoption. Antoninus, on the other hand, did not use HADRIANVS at first, and resorted to it rather infrequently throughout his reign.

Such an array as we have here in these three family names in addition to the one which was distinctive, T . AEL . HADRI . ANTONINVS, was thus far a novelty on Roman Imperial coins. But inordinate reduplication of names was rapidly becoming a widely extended practice. Antoninus himself had had no small list from which to choose. But, to do him justice, the chronology of his later coins shows that he decidedly favored the simple Antoninus Pius and it is especially to his credit that he was not forced to this shorter form by the press of additional titles.

But it will have been noticed that neither PIVS nor AVG. appear upon the obverse of these coins from the Emperor's own mint. It was

[12] Since writing the above sentence, there has come to hand a catalogue of the collection of 'Roman Coins at St. John's College,' listing 20 pieces under the name of Antoninus, only one of which shows the *corona radiata.*

[13] Eckhel, p. 3.

left for the reverses of all these to proclaim, for the first time in money this momentous message:

AVG . PIVS . P . M . TR . P . COS . DES . II.

And so, the name Pius had at last made its appearance, but in unexpected humble guise, and with Augustus in its company. It had been accepted as almost canonical, that Augustus, as the highest possible honor, should be given a place of prominence on the obverse. There had been one short period of aberration under Nero, Galba, and Vitellius, while, since that time, but one coin of Vespasian and two of Hadrian's had witnessed a lapse. The scarcity of instances is quite remarkable. Therefore our surprise is the greater to find that, of the 17 or more differing styles of title which Antoninus employed after his assumption of sole power, there were two, numbering, however, many issues, in which Augustus and Pius were thus, as in this last coin, relegated to the reverse. Not only did it mean a displacement, as it were, of the ranking title of Roman Imperial royalty, but it would seem to indicate that Antoninus did not at once appreciate, as he certainly did afterwards, the uniqueness and majesty of his new *cognomen* Pius.

The first of our illustrated coins now finds its place in the chronology of Antonine's money,—a 'middle bronze,' probably the last coin of the year, in which the Senate now first indulged in their eulogium of Pius. The Emperor is laureated, though these bronzes shared the characteristics of the Emperor's last coins, after which they were modeled to a certain extent, and therefore some of the group represented the Emperor with bared head. The portrait is quite clear and readily recognizable,—indeed, one familiar with the portrait-busts of Antoninus in any of the European galleries, such as that in the British Museum or the one in the Glyptothek Ny Carlsberg at Copenhagen, a cut of which is here shown, could not mistake the dignified, benevolent face on this coin and its companions to follow. No corroboration is needed from the encircling legend,—for this is indisputably the Fourth of the 'Five Good Emperors,' the Imperator Pius as he is pictured in the pages of *Cassius Dio and Capitolinus and Marcus Aurelius*, renowned and beloved for his justice, his sobriety, his gentleness. His very beard seems in harmony with his virtues,—it has a tendency to invest Antoninus with a maturity and a benignity which contrast strongly with the ever youthful and aggressive face of Trajan, or the sharp, nervous features of Hadrian.

The legend of the obverse is either badly executed or severely mutilated. It is the same as in the higher denominations just described, but with the first two titles of the reverse appended to that of the obverse, as more consistent deference would seem to dictate. Thus we now have:

IMP . T . AEL . CAES . HADRI . ANTONINVS . AVG . PIVS.[14]

The PIVS on our coin is quite indistinct, though there can be no doubt that it should be there. Attention may be called in passing to the wide spacing above the Emperor's head, between the T and O of ANTONINVS,—a feature which will be noted in several of the succeeding coins.

[14] So, Eckhel, p. 3, but our coin omits the final I of HADRI, showing that this brass issue admitted the same variants as did the preceding issues of gold and silver.

The transference of the AVG . PIVS. to the obverse leaves the inscription of the reverse exactly the same as in the Senate's last issue, though it could hardly be surmised from the present state of this one coin. There are only dim traces of

P . M . TR . POT . COS . DES . II.

The device, however, is more discernible,—the standing woman, with the branch in her right hand and the horn of plenty in the hollow of her left arm. The reverse is thus identical throughout with that of the last Senatorial coin. The Senate had merely altered the obverse of their last issue.

The year 138 was now drawing to a close. We shall soon find Antoninus beginning the New Year of 139 with added honors and new mintages in contemplation.

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PRELIMINARY REPORT TO THE MINNESOTA HISTORICAL SOCIETY ON THE KENSINGTON RUNE STONE[1]

EARLY in 1910 the Minnesota Historical Society undertook a careful investigation of the claims of the Kensington Rune Stone to determine its authenticity or fraudulent origin. With this purpose Prof. N. H. Winchell made three visits to the locality and various linguists have examined the inscription to determine whether it could have been written in the middle of the XIV century. The results of these several lines of investigation are combined in the report of the Museum committee to the Historical Society and while it does not definitely settle the question it clears up a number of points and reduces the discussion to a few essential features of the inscription.

The general description of the stone, its discovery, and the translation of the inscription is well covered by the article in Records of the Past for January-February, 1910, by Dr. Warren Upham. The linguistic difficulties were well discussed by Mr. H. R. Holand in the September-October issue of Records of the Past, 1910. In view of this we will confine our attention to other points not previously discussed in our magazine.

There are several references in the inscription to topography, location and natural objects which have been verified. The following are of special interest:

(a) Their camp was near two rocks in the water (skerries), one day's journey north from the stone;

(b) The location of the stone was on an island;

(c) The sea was 14 days' journey from the stone (doubtfully 41).

(a) Professor Fossum and Mr. Holand searched about lake Christina, Pelican lake, and other lakes, lying about one day's journey (20 miles) toward the north. The

[1] Summary of the Preliminary Report to the Minnesota Historical Society by its Museum Committee on the *Kensington Rune Stone.* Published by the Society, December, 1910.

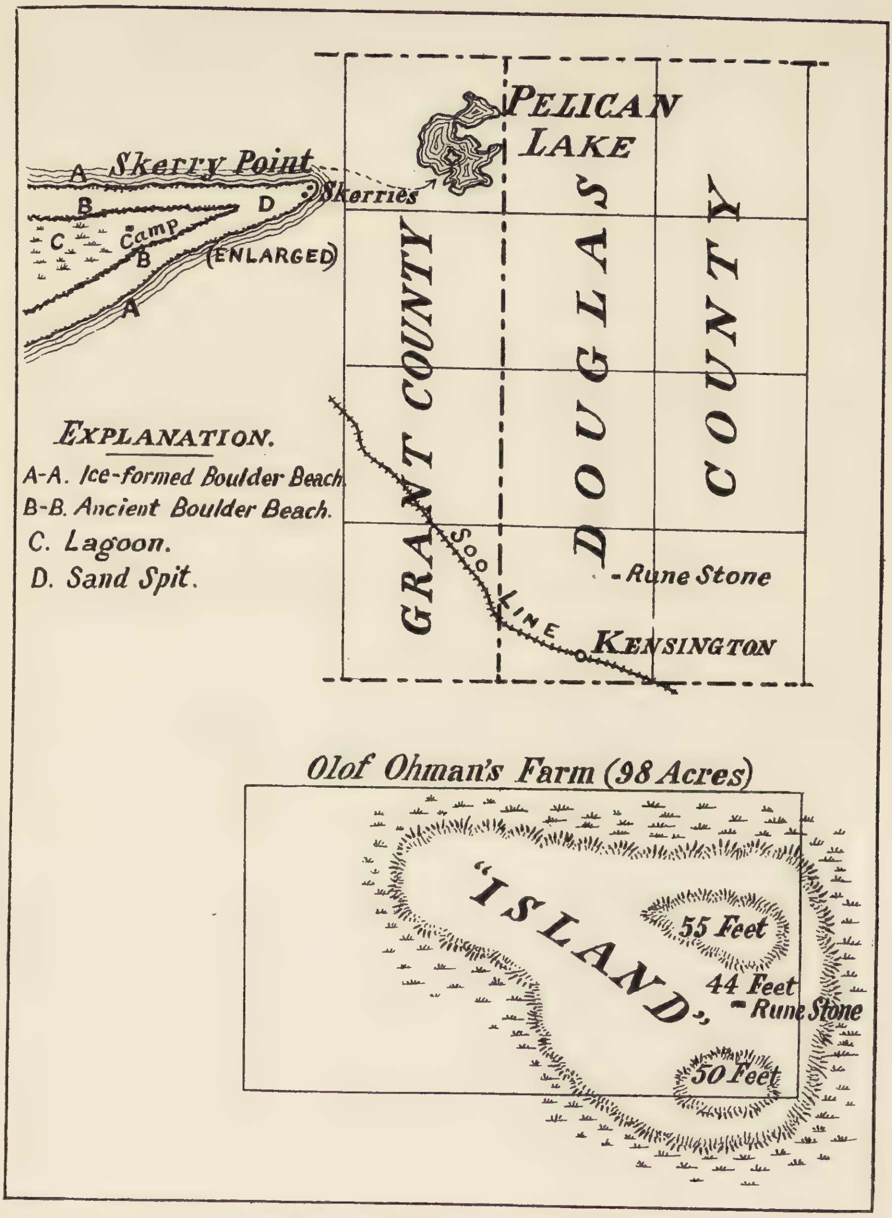
former found no rocks about the shores which could be accepted as the rocks mentioned in the inscription. Mr. Holand, guided by Rev. O. A. Norman of Ashby, found several large boulders standing in the water about 300 or 400 ft. from a sharp point on the southwest shore of Pelican lake, which seemed to him to answer the description. There are 12 or 13 of them and hence they are too numerous, and for the purpose of locating a camping-place they would hardly be referred to, and certainly would not be in accord with the number "two." Mr. Norman remarked, on occasion of a late interview, that the term "skerry" is applicable to one rock or a series of rocks, and that there are two lines or series of boulders which run not exactly parallel, and that those lines might be called the skerries referred to in the inscription; but such lines are not distinguishable from the land.

There are, however, on the point itself, at the water's edge and at the extremity of the point, two enormous boulders. One is of red porphyritic granite, cut by a coarser red dike, three inches wide, with dimensions of 6 ft. by 4 ft. by 3½ ft., with rounded contours. The other is of gray gneiss, banded with light reddish laminae, 6 ft. by 4½ ft. by 4 ft., irregularly and bluntly angular, showing some brecciation and a pegmatyte vein about an inch wide. These boulders are in the most exposed position, and are very conspicuous objects to anyone standing on the land a few rods farther back. Some small boulders and sand form the immediate breakwater of the beach, and also compose the point itself for some distance inland from the boulders.

This part of the point is liable to destruction by ice and by waves and winds of every season. That it is transitory is proved by the fact that the roots of a small oak are uncovered to the height of 14 in. above the present surface, and this oak must have started to grow when the surface on which it sprouted was so much higher than now. Under such conditions, at times when the adjoining beach may have been washed away, the large boulders would be surrounded by water. It is also very certain that 548 years ago the lake level was somewhat higher than it is now, and that circumstance alone. without the removal of the stones and sand lying now about the big boulders, would have brought these stones into the water, and would give them exactly the characters required to comply with the inscription. The present beach line is paralleled, on either side of the point, by a higher beach composed of boulders, gravel, and sand, which could have been formed only when the lake was about two feet higher than now. This upper beach fades away into the mainland of the point, but between its arms embraces a small lagoon. If the explorers' camp was on this point, near its extremity, the two big boulders would be chosen very naturally as reference points in the inscription.

(b) The stone is said to have been located on an island, but when found it was not on an island. It was on a morainic hill which is now surrounded by a grassy marsh, and which may have been an island in a small lake prior to the desiccation of the country which has converted many lakes into marshes and many marshes into meadows. This gradual drying up of the country is a well-known feature throughout the western part of the state. It has been known and many times noted during the last fifty years throughout the Northwest. If the stone be genuine, therefore, the present disagreement with the facts, as with the skerries, is due to physical change in the surface of the country.

(c) The stone was fourteen days' journey from the sea. At no place could the sea be reached in that space of time, with their means of travel, other than Hudson bay. There is some doubt whether this figure should be 14 or 41, and if it be 41 it would allow the supposition that the party penetrated the country by way of the Great Lakes. There are, however, insuperable objections to such an idea. It is a very improbable suggestion that from any place which may have had the name of Vinland a party would penetrate North America by that route, by sail and by foot, to encounter the natives in a tragic death only in western Minnesota. That suggestion need not be further considered; and the more so, since the route of possible travel, or at least most probable, as shown by the accompanying map of the regions north to Hudson bay and of the proximity of Minnesota through a well known water route, would have been from Vinland to Hudson bay, and to lake Winnipeg via Nelson river, and thence up the Red river of the North. This map is based on the chart of J. T. Smith, published in 1839 at London, in a work entitled *The Discovery of America by the Northmen in the Tenth*



MAP OF REGION WHERE KENSINGTON RUNE STONE WAS FOUND
From *Report to Minnesota Historical Society.*

Century. By this map it appears that the entrance tc Hudson bay is directly west from Westbygd and Eastbygd, the chief settlements of Greenland, and would hardly fail of being well known. It is the route which the ships of the Hudson Bay Company followed for about 300 years in reaching the region of furs tributary to Hudson bay.

An interesting, although by no means new question, is raised in connection with this rune stone regarding the location of Vinland. The investigations of the Committee have thrown some new light on this. The three divisions of the Atlantic coast, Helluland, Markland, and Vinland,

have been variously placed along the coast, the most southern, Vinland being located at different points from Nova Scotia to Massachusetts and even further south. Mr. Joseph Fischer in quoting from Adam of Bremen's oldest work states that the objections to Adam's tales consist mainly in a statement like the following:

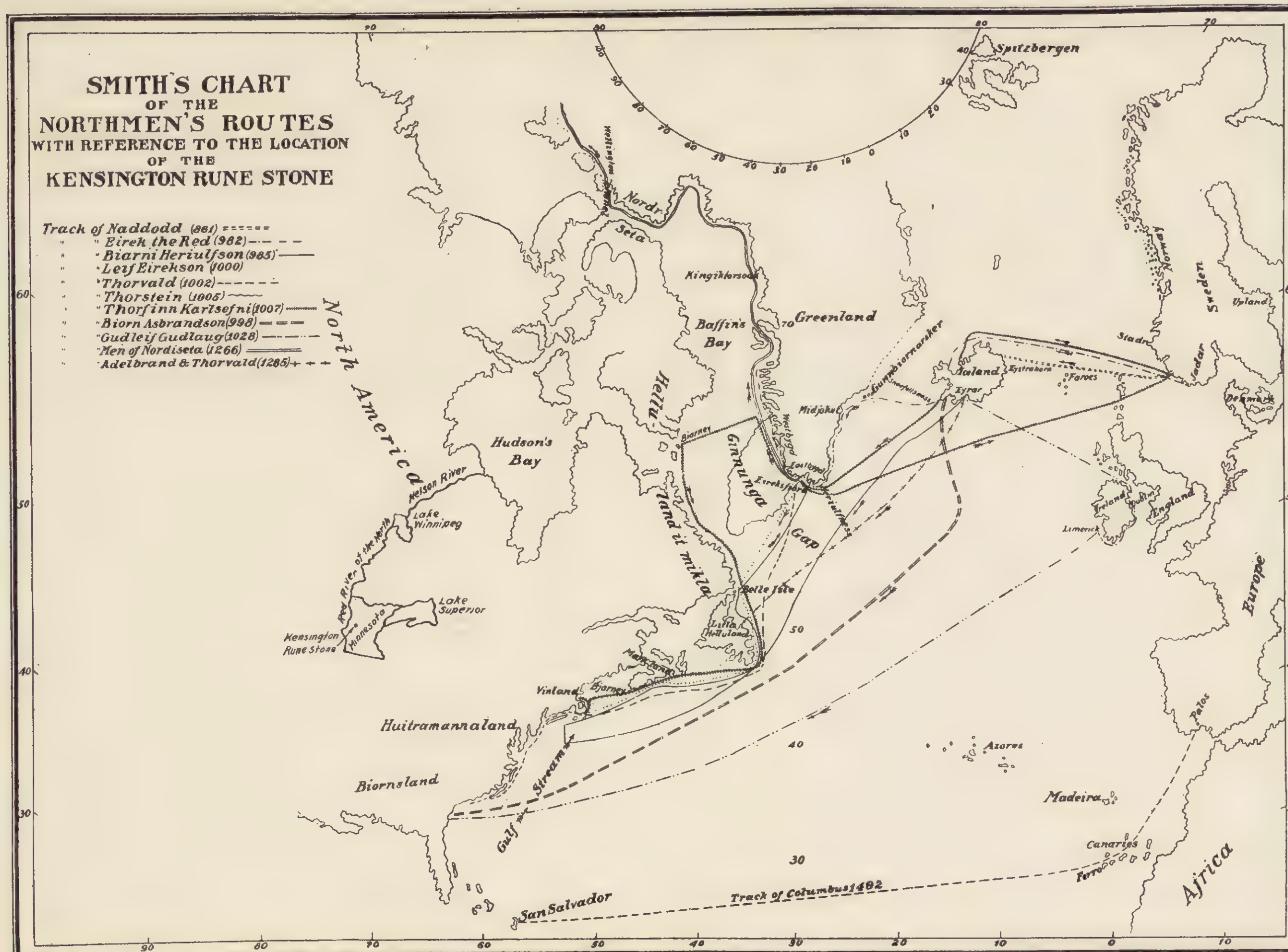
After Wineland there is no habitable land in that ocean, but all that emerges is icebound and wrapped in impenetrable mist.

This description could not apply to the south of Labrador, "but it is applicable to the country north and west, *i.e.*, adjoining Hudson Strait and extending into Hudson Bay; and it seems to indicate that from the first the Northmen knew something of the ruggedness and inhospitable nature of at least the northern part of Hudson Bay. It is perhaps reasonable to presume that at the first the term Vinland was applied to the whole known coast of North America, and that it was only at a later epoch that it was localized and restricted to Nova Scotia or to Massachusetts." The objection to this has been the accounts of grapes growing spontaneously and other references to grain and vegetation. The researches of Prof. M. L. Fernald as recorded in his work on *Plants of Wineland the Good* seems to answer these objections. He says that:

. . the "grapes" referred to by the translators of the Sagas, were not the fruit of the grape vine (Vitis), but some form of current (Ribes), or the wine-berry of northern Europe (Vaccinium Vitis-Idaea), and that the last named species is common in northern Labrador. As the so-called "grapes" were gathered so abundantly as to fill their after-boat in the spring of the year, it seems certain that the fruit so gathered was that which is now well known as wine-berry (Vaccinium Vitis-Idaea), which is so abundant in the spring as to constitute the food supply for birds when they return from the south.

Professor Fernald also shows that the "self-planted wheat," mentioned as one of the products of Vinland, was the strand wheat (Elymus arenarius), having a similar northern distribution. The tree which the Norsemen procured in Vinland, as identified by Fernald, was not maple, but some form of curly birch, probably the canoe birch (Betula papyracea). These researches not only confirm the description of Adam of Bremen, but render it probable that the people of Vinland were acquainted with more or less of Hudson bay.

It is well known that students of Norse records have found difficulty in reconciling the statements respecting Vinland, not only as to the name of the discoverer, but as to the nature of the country and its products. It occurs to this Committee that possibly these discrepancies can be reconciled by the supposition that two different eastward-facing coasts have been confounded and considered as one. The earliest accounts are perfectly applicable to the west coast of Hudson bay. The Flatey book states that in Vinland were glaciers, and these are well known about the northwestern confines of Hudson bay, but are not found in Nova Scotia nor in Massachusetts, and only scantily in Labrador. The description by Adam of Bremen, and the earlier dates given by the Flatey book, giving Bjarne as the discoverer of Vinland, seem to point to the west coast of Hudson bay. After the lapse of about fifteen years (985 to 1000) Leif's accidental voyage to Vinland took place, and there is reason to suppose that he and his successors visited points on the Atlantic side of North America, but supposed they had visited the country which had already been named Vinland. From his and Karlsefne's sagas, there rose the geographic distinctions of Helluland, Markland, and Vinland, so much spoken of by all later accounts. The Committee has not taken the time necessary to verify or to disprove this hypothesis, and desires merely to call attention to it as a possible solution of contradictions that appear in the historic records, avoiding the necessity of rejecting either as untrustworthy.



From *Report to Minnesota Historical Society.*

The slight weathering of the inscription indicates that if it dates to 1362, it must have been buried, or at least that the stone was thrown to the ground face down, soon after it was cut. As there is not only a possibility but a probability that this occurred arguments *pro* or *con* based on the weathering are of little value. The weathering corresponds to that found on similar boulders found in the glacial deposits of this locality.

NOTES ON THE RECORD GIVEN BY THE INSCRIPTION

The party started from Vinland, a very remarkable statement in the light of the fact that it is not known, even at this day, that a permanent or even a temporary colony was established in Vinland. The expression "from Vinland" may mean in a direction westward from Vinland. In the light of the results cf Professor Fernald's studies on the *Plants of Wineland the Good*, it is remarkable, if the stone is fraudulent, that the location of that country by Fernald, since all modern (and even earlier) descriptions of Vinland have placed Vinland either in Nova Scotia or in Massachusetts. Could it have been a random and accidental coincidence, that a fraudulent record should correct the current historical belief of the times? How could an impostor come to the knowledge that Vinland was nowhere except in Labrador or at least in the region about the entrance to Hudson strait? What credit could be given to his record by going counter to the accepted history of his time? This agreement with the latest research as to the location of Vinland is a very suggestive fact.

They went "westward" from Vinland, and they had their ships till within 14 days' journey of the end of their exploration, when they left them "at the sea," with 10 men to guard them. If the record be fraudulent, what reason could there be for saying that their camp was 14 days' journey from the sea? How much more probable it would be to say that their camp was 40 days or even two months' journey from the sea, especially if Vinland was where it has been thought to be; and how much more probable that an impostor would not attempt to make a definite statement. If the record is fraudulent the impostor was very foolish not only in giving the distance of their camp from the sea, but also in saying how far it was north from the stone. Not only so, but he attempted, more foolishly, to give guides to the exact location of the camp by saying it was "near two skerries." If the stone had been noticeably more than one day's march from those skerries, or if the camp had been noticeably nearer or more distant than fourteen days' journey from "the sea," there would be much doubt thrown upon the record by such a discrepancy.

The exactness with which the location of the camp is described can be attributed to the probable burial of the ten men at the camp, and the natural desire to describe geographically the place of the bloody massacre of ten of their comrades; while the agreement of this exactness with the facts in nature shows how improbable it was for a faker runologist to have made the inscription. If the record be fraudulent, it is a remarkable fact that those two skerries exist, and at the right distance, and that there are no others.[2]

It is still more remarkable, on the hypothesis that the stone is fraudulent, that within modern times they could not be called skerries, as they are not now surrounded by water. Hence the impostor-scribe was not only a runologist, but he was able to look backward through the physical change that has come over the region, and to describe those boulders as they were 548 years ago, when there is no doubt that the water of the lake was so high as to surround them and thus warrant the description which he made of them. He must have been a geologist.

If the record is fraudulent, it is also remarkable that the impostor could see that 548 years ago the hill on which the stone was placed was surrounded by water so as to warrant the application of the term "island." He must have known, and must have

[2] Other lakes in the vicinity, within a possible range of twenty miles, have been searched over by Professor Fossum, Rev. O. A. Norman, and Mr. H. R. Holand, without finding anything that could be called "two skerries."

made allowance for the fact, that within recent time the country has dried up considerably, and that what are now marshes were then lakes.

If the stone be fraudulent, it is singular that the impostor ran the risk of all these details and violated none of them. A well considered fraud is usually characterized by the omission of details. Here was a recklessness and a fearlessness amongst details which betoken honesty and truth. The very discrepancies, where the details diverge from present geographic knowledge, when correctly understood are turned to so many points of confirmation.

"We were out fishing one day." That is a remarkable and rather singular statement, especially if the stone be fraudulent, since the fishing was on a lake twenty miles distant from the place at which the inscription was made. Again, they must have had boats. There is no reference to them. Where could they have got boats? Not a word is said as to how they reached the place where they were encamped, nor as to the direction to the sea. Such links as are necessary to make a connected and reasonable story would certainly be given by an impostor. But here the briefest statement is made of the leading facts, and the reader is left to connect them as best he can. We are not at a loss to supply the links. The boats must have been birch bark canoes, used to this day by the northern Indians, easy to propel in the water and easy to "portage" over the land.

Then comes the most remarkable feature of this remarkable inscription, "A.V.M." Hail, Virgin Mary! or Ave Maria. This is a distinctly Catholic expression. According to Archbishop Ireland, no modern Scandinavian would utter it, as they are Lutherans. It would be strictly appropriate in 1362. If the stone be fraudulent, the impostor artfully employed a term suitable to the date of the inscription; but we would hardly expect an impostor, such as this man must have been, to be so religious as to call on Mary, or any of the gods of the Vikings, or on any of the saints of Christianity. On the supposition that the stone is fraudulent, this is a decided anacronism and would hardly be introduced by an impostor.

If the stone is fraudulent, the base perpetrator was artful enough to make use of rune characters appropriate to the date 1362. The ancient runes are 16 in number, according to the grammar of Almquist. The inscription contains several characters not found in the old runic alphabet, and some that are peculiar to itself or to some locality.

Rev. O. A. Norman, of Ashby, called attention to a singular coincidence, viz., the frequency of the expression calling upon Mary, in Scandinavia, at the time of the "black death," which prevailed in the XIV century. A poem or song, entitled "Fornesbronen," was recited at the burials of the many dead, and appears to have become well known. It was lately reprinted in a brochure at Fergus Falls, Minn., entitled "Telesoga." Each verse ends with an appeal to Mary to grant help and freedom from evil. The sudden and bloody death of ten of their comrades seems to have impressed the living in a manner similar to the mysterious death of the black plague. If the stone be fraudulent, the impostor seems to have been aware of the prevalence of that prayer in the XIV century, and very shrewdly appended it at the proper place in this inscription.

It appears, from several considerations, that the scribe was a rather illiterate Swede. If the stone be fraudulent, it is singular that such a man should prove himself capable of such literary and historical knowledge, and of such artful cunning. If the stone be fraudulent, it seems necessary to suppose that a non-educated Swede should be able to make the inscription and to accomplish the following:

1. A simple, straightforward record.
2. Correct the prevalent notion as to the whereabouts of Vinland.
3. Refer to two skerries, which could not have existed when the record was made but did exist 548 years ago.
4. Refer to an island, which was not an island when the stone was inscribed, but was so 548 years ago.
5. Define exactly the location of the camp with reference to the seaside and with ference to the stone.

6. Describe the massacre in such a way as to indicate that the men were scalped by Indians, although no mention is made of Indians.

7. Make the prayer to the Virgin Mary common in Scandinavia in 1362, but an achronistic in the XIX century.

8. As an impostor, utter the common prayer of a devout Catholic of the XIV century.

9. Use in part some ancient runic characters instead of those common in later centuries.

10. All this deceit and laborious cunning, without any ascertainable motive, perpetrated in an unpopulated, or at most only a sparsely inhabited, region amongst a wilderness of forests.

LINGUISTIC CONCLUSIONS.

From the examination of the language of the stone the Committee think that they are warranted in making the following conclusions:

1. It cannot be the work of some unlettered amateur of the present day.

2. It is either the uncritical record of an exploration of the XIV century, or the fabrication of a consummate philologist familiar with the dialect of Vestgotland in the XIV century, which was essentially the Dalske dialect of Dalarne of the XVI century.

3. No expert philologist would make the blunder of writing *ded* for *död*. A modern philologist familiar with the evolution of *ö* from *au* would hardly make such an error, but such phonetic mistakes were common among the uncritical people of the XIV century.

4. The peculiarity of spelling "and" as both *ok* and *og* is abhorrent to the scientific precision of a modern philologist, but was very natural in the XIV century, when the sounds of *k*, *t*, and *p*, were frequently confounded with those of *g*, *d*, and *b*.

5. The use of the phrase, "*vi var ok fiske*," belongs in the same class of colloquialisms as *skullen* for *skulde han*, *haden* for *havde han*, etc. These phrases are all on the lips of the people in common speech, but no well informed person would suffer them to appear in a serious narrative in writing. But in the XIV century, with its greater phonetic freedom, they were all common.

6. Several obsolete words, which were in use in the XIV century, such as *laeger*, *rise*, *skjar*, *afilly*, and *from*, as well as the peculiar numeral characters, strongly indicate that no modern impostor made the inscription, as the works of scholars proving that they were in use at that time have mainly been published since the stone was found.

7. The linguistic internal evidences of the genuineness of the stone coincide with and confirm the indications that come from the finding of the stone and its attendant condition.

8. The numeral which expresses the number of days' journey distant from the seashore is more probably meant for *fourteen* than *forty-one*.

Finally the Committee adopted the following resolution:

Resolved, That this Committee renders a favorable opinion of the authenticity of the Kensington rune stone, provided, that the references to Scandinavian literature given in this Committee's report and accompanying papers be verified by a competent specialist in the Scandinavian languages, to be selected by this Committee, and that he approve the conclusions of this report.

Professor Gisle Bothne was selected to verify the references. In a letter to Professor Winchell he reports unfavorably in regard to the authenticity of the Kensington rune stone, although he admits the possibility of the Norwegians having penetrated to Minnesota in the XIV century. In conclusion, he says: "It seems to me that the stone should be brought to Norway to be examined by expert runeologists, and, in my opinion nothing else will dispose of the matter."

RECENT EXPOSURE OF PIT IN TRENTON GRAVEL A LITTLE FURTHER BACK THAN THE PLACE IN WHICH THE HUMAN FEMUR WAS FOUND. THE SANDSTONE BOULDER IN FOREGROUND CAME FROM 8 FT. BELOW THE SURFACE. A BISON BONE WAS FOUND 6 FT. UNDERNEATH IT

AMERICAN ANTHROPOLOGICAL ASSOCIATION

AMONG the many papers presented to this Association at its meeting in Providence, Rhode Island, December 28 and 29, 1910, there was a noteworthy one by Doctor Charles Peabody on *Certain Aspects of New Jersey Archæology*. This was of special interest from the fact that it indicates the close of the long contest concerning the question of the occurrence of human implements and remains in the undisturbed glacial gravels at Trenton, New Jersey, since it is connected with an announcement that Mr. Ernest Volk's report upon his long continued explorations of these gravels is shortly to be published. The most important discovery of this patient investigator was that of a human femur found 1st December, 1899, in undisturbed cross-bedded sand deposits beneath a stratum of unassorted glacial gravel 14 or 15 ft. below the surface. (See illustration RECORDS OF THE PAST, vol. VI, p. 163.) Though the main facts concerning this discovery were presented by Professor Putnam at the New York meeting of the Society of Americanists, October 20, 1902, the full details await publication in Mr. Volk's report. Doctor Peabody's paper, however, adds much interesting information concerning the situation of Mr. Volk's conclusive discovery. It appears that excavations have been carried on in this gravel bank almost continuously for the past 20 years, enabling us to compare the deposits throughout a considerable distance. In Wright's *Ice Age in North America*, fourth

edition, page 521 is a photograph showing the gravel bank as it appeared in 1889. In the photograph already referred to in RECORDS OF THE PAST we see the bank as it appeared 100 or 200 ft. further back in 1899. Doctor Peabody now shows the bank as it has been excavated a considerable distance farther back, from which it appears that the conditions were apparently constant during its deposition thus removing any lingering doubt that any persons may have had of its glacial age. In the exposure shown by Doctor Peabody, a boulder of red sandstone 2 or 3 ft. in diameter appears in the deposit 8 ft. below the surface, while 6 ft. below this, in cross-bedded gravel, the bone of a bison was found but a short time ago.

To understand how these human remains could be imbedded in these gravels in glacial times, one has but to examine photographs brought down some time ago by Professor I. C. Russell from the front of the Malaspina Glacier in Alaska (see Wright's *Ice Age in North America*, fifth edition, page 667) where it appears that toward the close of each summer when the melting of the ice is at its maximum, enormous floods which come out from the front of the glacier overflow the adjoining area and distribute such an immense amount of coarse sediment that it rapidly builds up a delta, sometimes gradually burying forests of standing trees. But while these torrential floods overflow the areas through which they pass in the latter part of the summer, they gradually diminish as cold weather approaches and for half the year leave a dry surface over which men and animals may roam and leave their marks behind them "on the sands of time" only to be covered by the debris brought down by succeeding floods. At Trenton the front of the ice was, indeed, 60 miles up the Delaware river, but the gorge of the Delaware until it reaches tide water is narrow and the gradient exceptionally steep (4 ft. per mile), so that no delta deposits were made till it reached tide water at Trenton where they spread out over an area 3 miles in diameter. The red sandstone boulder shown in Doctor Peabody's photograph came from the glaciated area of the upper Delaware valley and speaks in eloquent terms of the ice-laden floods which poured down the Delaware gorge and built up the delta terraces at Trenton during the closing stages of the Glacial Epoch, finding man already an occupant of the valley, associated with a striking cluster of animals now extinct in the region and whose remains are found associated with his,—namely, the mastodon, the walrus, Greenland reindeer, the carabou, the bison, the moose and the musk ox.

ANNUAL MEETING OF THE SOCIETY OF BIBLICAL LITERATURE AND EXEGESIS

AT THE annual meeting of the Society of Biblical Literature and Exegesis held at the Union Theological Seminary in New York City, December 30 and 31, 1910, there were two papers presented which were of special archæological and historical interest. Prof. David G. Lyon, of Harvard Divinity School, reported upon the results of the third year's exploration in Samaria and gave an illustrated lecture upon the inscribed potsherds found in abundance near the close of their explorations. Fortunately, the ancient cityof Samaria is not encumbered like Jersualem with modern structures which interfere with excavation, but as the site has been long abandoned, there is a free field for the explorer. The city was built around and upon the truncated summit of an isolated conical hill. For 3 years the excavations of the Harvard expedition have been carried on at the summit of the hill, and are now suspended only from lack of funds. During the first two years the excavations were chiefly among the ruins of the Herodian and Roman epochs (briefly described in vol. VIII, pp. 175, 176, RECORDS OF THE PAST, with illustrations, vol. IX, pp. 133, 134). But near the end of the third year a large number of potsherds were found covered with inscriptions dating from the time of Ahab. These were mostly business documents similar to those found in Babylonia, but they revealed literary and artistic advancement among the Israelites which was unexpected. Indeed, many efforts have recently been made attempting to prove that the inscriptions on the Moabite stone and in the Siloam tunnel must have been of much later date than had been supposed, because of their artistic perfection; but in these postherds, the evidence is superabundant that writing was very common in the time of Ahab and had attained to a high degree of perfection. The writing was in ink and the form of the letters closely approached that of later Hebrew. It is greatly to be desired that funds shall be provided for the continuance of this work, which, indeed, is but fairly begun, and as already remarked, is in a field where excavations are unfettered and where the promise of results is almost unrivaled.

Another paper of special importance was by Prof. G. Frederick Wright, upon the probable changes in the level of the Dead Sea. within the historic period. The paper was entitled *Geological Light on the Bodies of Water referred to under the title Lisân in Joshua xv: 2, 5.* In these passages in Joshua, the boundary of Judah is said to proceed from a 'tongue' (Lisân) at the south end of the Dead Sea and, coming around from Jerusalem, to end at a 'tongue' (Lisân) of the Dead Sea at Beth-Hoglah at the mouth of the Jordan. But there is now no tongue of the Dead Sea reaching up to Beth-Hoglah while the site of the ancient city is several miles north of the mouth of the Jordan. To meet this difficulty, Mr. Clermont-Ganneau had supposed that the level of the Dead Sea must have been considerably higher in the time of Joshua than now. On the contrary,

Doctor Wright maintained that it was probably 30 or 40 ft. lower at that time, and that the space between the Dead Sea and Beth-Hoglah had been largely filled in by a delta deposited by the Jordan river. In support of this theory, he maintains that the effect of the deposition of sediment at the mouth of the Jordan and of the various wadies which come into the Dead Sea from the eastern, southern and western sides of that body of water has been greatly to narrow the original area of the sea. This would limit the evaporating surface, so that the water would be compelled to rise and flow over the low ground at the south until the equilibrium between the precipitation and the evaporation was maintained.

We are familiar with the growth of similar deposits in other places. The city of Ephesus is now a considerable distance inland, because of the silting up of the mouth of the river. The city of Adria in Italy is now 15 miles inland, whereas it was a port on the Adriatic Sea in historic times. The city of Tientsin in China, now 30 miles inland, was a seaport during the Han dynasty. The sediment from the Tigris and Euphrates rivers has silted up the head of the Persian Gulf for a distance of nearly a hundred miles. Eridu, now a hundred miles inland, was a seaport in the time of the cuneiform inscriptions. Doctor Wright estimates that a cubic mile of sediment has been brought down by the Jordan into the head of the Dead Sea since the time of Abraham, and an equal amount from the other streams coming into the Sea farther south. This would be sufficient material to cover with sediment 25 square miles 500 ft. deep. The surveys about the mouth of the Jordan clearly indicate an extensive delta deposit of the Jordan south of Beth-Hoglah. In commenting upon Doctor Wright's paper, Professor Schmidt, of Cornell, who for a year was head of the Society's School at Jerusalem, confirmed the inferences of the paper that there must be deltas at the mouths of all the other considerable streams coming into the Dead Sea,—he having observed them at the mouth of the Zerka-Maon and of the Arnon coming in from the east, while Doctor Wright and other observers had noted similar deltas on the other sides. There can, therefore, be no doubt of the reality of this cause as limiting the original area of the Dead Sea when present climatic conditions first came into existence after the close of the Glacial period. Moreover, Professor Ellsworth Huntington, in his recent investigations of the field, believes that he has discovered a submerged shoreline 40 ft. below the present surface.

As the water in the south end of the lake is now nowhere more than 15 ft. deep and over a considerable portion only 5 or 6 ft. deep, it is in that area that the rising water would overflow and find compensation for the diminished area caused by the encroachments of the deposits at the north end. This area is fordable in low water. In 1818 Irby and Mangles saw a party of Arabs cross it from one side to the other along a route marked by branches of trees set up in the water. In RECORDS OF THE PAST, July-August, 1910, p. 229, note is made of the discovery by Mr. A. Forder of an ancient causeway connecting the east and west shores of the Dead Sea near the south end. The results of this conclusion concerning the former level of the Dead Sea are very far-reaching and important in their bearing on archæological and historical questions. They confirm the persistent tradi-

tion that Sodom and Gomorrah were at the south end of the Sea in the shallow area now covered by water. They make it entirely credible that this area was in the time of Abraham "like the garden of the Lord, like the land of Egypt, as thou goest unto Zoar," as the plain of Sodom and Gomorrah is described to have been (Genesis xiii, 10). These conclusions also make it almost certain that in the time of Chedorlaomer there was a passage from the south to the north end of the Sea along the margin without necessitating, as now, the difficult detour over the rugged mountains to the west. It is thus that the study of geology and physical geography is coming to our assistance in the interpretation of historical data and archæological remains.

ARCHAEOLOGICAL INSTITUTE OF AMERICA

THE annual meeting of the Archæological Institute of America, Prof. Francis W. Kelsey presiding, was held in Providence, Rhode Island, December 27 to 30. So many papers were presented that it would be impossible to give an account of even a small proportion of them. From this embarrassment of riches, we select for notice only two, namely, *Della Robbias in America*, by Alan Marquand, and *Italian Paintings in America*, by Frank J. Mather, Jr., both, it will be observed, by Princeton professors, and both calling attention to the wealth of material which we now have in this country for the study of Italian art during the period of the Renaissance. In fact the public and private collections in this country now contain so many of the best representatives of the art of that period that students make a mistake in going to Europe before giving attention to our own treasures, while those who are for any reason prevented from visiting the old world can supply the deficiency in good degree by giving attention to things within their reach at home.

The following is a partial list of the papers presented: *Report on the Excavation of Cyrene*, Arthur Fairbanks, Museum of Fine Arts, Boston; *The Excavation of Balcony House, Mesa Verde National Park*, Jesse L. Nusbaum, Santa Fé; *Methods of Classifying Roman Concrete Structures*, Esther Boise Van Deman, Research Associate of the Carnegie Institution, Rome; *A Marble Roman Bowl from Badgad*, Oliver S. Tonks, Princeton University; *The Erechtheum*, George W. Elderkin, Princeton University; *A Pair of Black-figured Lekythoi in the Worcester Museum*, Elizabeth M. Gardiner, Worcester Art Museum; *Survivals of Primitive Religion in Syria*, Lewis Bayles Paton, Hartford Theological Seminary; *The Sequence in the Development of Art in Copan and Quirigua*, Edgar L. Hewett, School of American, Archæology; *The Work of the School of American Archæology in 1910*, Alice C. Fletcher, Washington; *The Ruins of Choqquequirau*, Hiram Bingham, Yale University; *Philistine and Hebrew in Palestine*, Elihu Grant, Smith College; *Recent Explorations in Northern Guatemala*, A. M. Tozzer,

Harvard University; *The Historical Value of the Books of Chilan Balam,* Sylvanus G. Morley, Santa Fé; *Cretan Anthropometry,* Charles H. Hawes; *An Archaic Greek Grave Stele in the Museum of Fine Arts, Boston,* Lacey D. Caskey, Boston; *The Work of Domitian on the Palatine Hill in Rome,* Esther Boise Van Deman; *Some Incantation Bowls from Nippur,* James A. Montgomery, University of Pennsylvania; *The Chair of Maximianus in Ravenna,* Thomas J. Preston, Jr., Princeton University; *Coptic Architectural Fragments recently acquired by the Metropolitan Museum,* Caroline L. Ransom, Metropolitan Museum; *The Bird Motive in Ancient Pajaritan Pottery,* Kenneth M. Chapman, Santa Fé; *Two Copies of the Head of Athena Parthenos from Corinth,* David M. Robinson, Johns Hopkins University; *Notes on the Recent Egyptian Acquisitions from Gizeh in the Boston Museum of Fine Arts,* L. Earle Rowe, Boston; *American Excavations in Crete in 1910,* Edith H. Hall, Mt. Holyoke College; *Parthenon Studies,* B. H. Hill. Athens, Greece.

BOOK REVIEWS

EXPLORATIONS IN THE DEPARTMENT OF PETEN, GUATEMALA[1]

IN Volume IV, No. 3 of the Memoirs of the Peabody Museum Mr. Teobert Maler gives an account of several expeditions which he has made through northern Guatemala and his observations on the sites of ancient cities scattered through this region. On Peten-Itza, near the town of Motul, which Mr. Maler distinguishes from the well-known city of that name in Yucatan by adding the suffix de San José, an important temple site was discovered, which he describes as follows:

> In a square near the center of the city I found a large monolith, which, however, was broken into two pieces. The lower piece was still standing upright in the ground. One of its broad faces displayed sculpture of rude appearance in consequence of being much weatherworn. The sculpture on the upper piece, which had fallen off, was completely destroyed by fires and torrents of rain, and therefore there was nothing to be done with this once interesting stela.
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> The main group of *cuyos* lies in the western part of the city. On the esplanade of one of these fallen temples I found what was once a large stela covered on all 4 sides with sculptures. The sculpture on the eastern broad face only could be photographed, and that under difficulties.
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> The now ruined temple to which this large stela belonged stood on the platform of a massive substructure some 5 m. high, with a stairway on the west side since its façade may have faced the west. On the esplanade of this temple, on a small platform only half a meter high stands the stela, which should be considered as connected with the temple. Unfortunately this stela was scaled away at the top and on the side faces

[1] Memoirs of the Peabody Museum of American Archæology and Ethnology, Harvard University, Vol. IV, No. 3, *Explorations in the Department of Peten, Guatemala and Adjacent Region, Motul de San José; Peten-Itza, Reports of Explorations for the Museum,* by Teobert Maler. Published by the Museum, Cambridge, 1910.

EAST SIDE OF STELA, MOTULDE SAN JOSÉ
From *Memoirs of Peabody Museum.*

by falling trees and the disastrous milpa fires, and it was also badly calcined, but the sculptured face turned toward the temple was still preserved to some extent. . . . The sculpture was buried from the knees of the dancing priest downward. This lowest part was dug out and the base line is now plainly seen. The present outer height of the stone is 236 cm., to which should be added the part sunk in the ground and that broken off at the top. Its breadth now is the same as its height, but some pieces have been broken off on each side face. The stone is 46 cm. thick.

Stela. East Side. Two priests of high rank, supposed to be standing opposite one another, are evidently engaged in a sacred dance. Let us describe first the figure of the high priest on the observer's left. He is represented in front view and touches the ground only with his tiptoes while his face is turned to the left. The style of his foot-gear is plainly seen in the photograph and each instep has a pear-shaped ornament with a tuft. He wears close-fitting breeches. His girdle with a lower border of shells is almost wholly hidden, but we recognize the broad ornamental flap hanging from his belt, ending in rectangular scrolls turning to the right and left. He wears cuffs, a large, richly decorated breast-cape, and a feather cloak on his back. The round ear ornament is still plainly visible on his somewhat weather-worn face. His head-dress, built up high, shows three masks of gods placed one above the other. One large eye and proboscis-like nose are still visible on the mask. Above the third eye is a circular design (small *rueda*, Tonalamatl?). Superabundant masses of feathers rise upward, droop backward and particularly forward. With his right hand the priest holds to his body the delicately executed little figure of a god with a snouted face as usual (*i.e.*, Ehecatl, god of winds) and the small leg by which the idol is held ends in a little snake stretching forward. The small god wears a loincloth or *maxtli* (*mastli*). With his tiny right hand he is closing the mouth of the face-mask attached to the middle of the priest's breast-cape. The priest extends his left arm, on the wrist of which is a small round shield, to the other person of rank.

The second personage (on the observer's right) is also represented in front view, but with his face turned to the right. He, too, touches the ground only with his tiptoes and wears the same style of shoe and similar breeches. His gala girdle trimmed on its lower edge with a fringe of shells is plainly seen and shows in front three face masks each with a single pendant. The garment with breast-cape consists chiefly of beads. A narrow breast-plate can be discerned lying horizontally below a larger breast ornament decorated with small incised circles. On his back is a cloak of radiating feathers. A round ear-peg is visible. The tall helmet is mostly destroyed, but its superabundant bunches of feathers are plainly seen extending upward, forward and backward. The priest extends his right hand to his companion, and his left hand, with a kind of beaded band on the wrist, holds the familiar ornamental pouch decorated with small incised circles.

Between the two priests stands a kind of altar, the base of which displays a horizontal row of 6 small glyphs, while its somewhat projecting front surface shows two vertical rows each containing 5 large glyphs. Unfortunately only 4 of these glyphs are partially preserved, while the others were scaled off by fire. In addition there are 4 finely carved glyphs in a vertical row on the background by the side of each priest.

In Lake Peten-Itza Mr. Maler discribes a sacred island which rises some 30 ft. above the surface of the lake. In the center of the island there is an elevation with a leveled surface of considerable extent formerly occupied by buildings, the walls of two temples being easily distinguished. "The façades of both temlpes faced the west and their backs were therefore turned to the plaza." The façade facing west shows 4 massive pillars, "the spaces between them forming the entrance to the temple proper." The outer wall had a frieze which still shows the stucco and the color used. "The steeply sloping frieze has a torus as an upper and a lower cornice and both tori are of a fiery red color, while the inclined surface of the frieze is of a yellowish white tint." There is a band of glyphs in color, but not sufficiently preserved for copying.

Beside these more detailed discoveries there are recorded a large number of sites which were observed but not examined carefully. Possibly the chief value of this Memoir will be as a guide for future excavation in this most interesting region.

EGYPT AND ISRAEL[2]

IN THIS volume Doctor Petrie gives in concise and attractive form the entire story of Egypt's relations both to Judaism and to Christianity. The volume is enriched also by more than 50 illustrations, many of them full page.

Altogether it is a wonderful commentary on the fulfillment of the prophecy "out of Egypt have I called my son." Some of the positions maintained by Doctor Petrie differ widely from the traditional views, but they are presented with such reverence and skillful array of facts and arguments that the reader cannot but be impressed with their plausibility at least. He places the crossing of the Red Sea north of the Bitter Lakes, whereas most authorities (see RECORDS OF THE PAST, vol. V, pp. 295–302) would place it south for reasons which seem to us satisfactory. The date of the Exodus is fixed at 1220 B.C. The most striking chapter in the book relates to the numbers of the Israelites, a subject which has created great difficulties with all interpreters; since Goshen seemed too small to have contained the two or three million people which the ordinary interpretation assigns to the Israelites at this time, and the maintenance of such a population during the 40 years in the wilderness seems entirely beyond the capacity of the country passed through. At the same time the description in the text seems to imply very much smaller numbers. For one thing, the number of the midwives required, only two, is out of all proportion to the great numbers of the people, as is also the extent to which Moses is said to have judged disputes among the people. Moreover, upon the entrance into Palestine, fear was expressed least the people were so few that they would be driven out by the wild beasts.

To obviate these difficulties, Mr. Harold M. Wiener in his *Essays in Pentateuchal Critisicm* has emphasized the fact that by the early Hebrew method of transmitting numbers it was very easy to confound tens with hundreds which in some cases we know has been done. He, therefore, concludes that in the course of transmission, after the country had become fully occupied by a dense population, the text in this respect was so corrupted that the census of the population in most cases should be divided by ten. Doctor Petrie has a different explanation arising from the identity of the word for thousand and family. This is *alaf*. "Hence the statement in words of 32 *alaf* 2 hundred people might mean 32 thousand 2 hundred, or 32 families 2 hundred people. In the latter sense the column of thousands would be the numbers of tents in a tribe, and the column of hundreds the numbers of people." (P. 43.)

Upon carrying out the calculations upon this theory, he finds many remarkable confirmations of it in the construction of the tables and thereby reduces the numbers of those engaged in the Exodus to a total of 5550 persons. The author's chapter on this subject is certainly worthy of attention. Aside from these questionable interpretations there is little else to which

[2] *Egypt and Israel.* By Professor W. M. Flinders Petrie, D.C.L., LL.D., F.B.A. Fully illustrated; pp. 150. Society for Promotion of Christian Knowledge, London: E. S. Gorham, New York. 1911.

conservative critics could in any manner object, but the volume is full of illustrative material shedding light upon the whole connection of Egypt with Israel and with the early Christian Church and will be welcomed by all historians and archæologists as well as students of biblical literature.

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THE LURE OF THE ANTIQUE[3]

ANY one who remembers his or her grandmother's china closet and has been so fortunate as to have been privileged to rummage in the old family attic, with its fascinating chests, silent spinning wheels, and piles of unused furniture, will be sure to enjoy *The Lure of the Antique* by Walter A. Dyer. Its illustrations, quaint cover and good type will give much pleasure as well as instruction.

The book is full of useful hints to the amateur collector; and one must find it hard to go astray in his search for Chippendale or Hipplewhite or Lowestoft, if due attention is given to these suggestions. The author also gives some very good advice to those impulsive but inconsiderate people who jumble all styles and periods of antiques together making a hodge-podge of their houses. He very sensibly advises them to take some one line and adhere as closely as possible to that and they will be apt to find the result most pleasing. Beauty is more largely the result of harmony than people usually consider—any number of really elegant pieces in themselves fail to do what they should when jostled by some incongruity. He devotes a chapter to various pieces of furniture, paying more attention to chairs we believe than to almost anything else. Beginning with the year 1600 and the Elizabethan chair, he mentions only a few points. The earlier chairs were heavily braced near the floor but gradually this bracing grew lighter until it finally disappeared—thus giving the collector an idea as to its age. Again he details quite fully the peculiarities of the different styles and makes the assertion that it was not till 1750 that mahogany chairs became common. From 1760–1820 England produced her best furniture, many pieces of which have found their way to this country. Chippendale, Hipplewhite, and Sheraton were the leaders in design, and much beautiful work was turned out from their designs. A most interesting chapter is devoted to desks and tables. The gate-leg table of 1680, the pie-crust table of a hundred years later, the card tables of our great grand-mothers, the pier tables of Hipplewhite and Sheraton with their beautifully inlaid tops—all have a place.

We learn that it was not to any of the famous designers that we owe the sideboard but to a Thomas Shearer of London. Hipplewhite later utilized his designs and changed them somewhat. However our author considers Sheraton's sideboards as quite the most superb pieces of cabinet making. Cellarets, closets for wine bottles, slides for serving trays and

[3] *The Lure of the Antique.* By Walter Dyer. Pp. xii, 499; 79 illustrations. $2.40. The Century Co., New York. 1910.

racks for glasses and plates,—in addition we frequently find urn shaped knife boxes, and these usually inlaid.

One despairs of giving much idea of the information in the chapters on four-posters and other bedsteads, there is so much of interest to say. The Tent beds are about as rare as any. The beautiful carving on the old four-posters, and the grace and proportions of these posts make them a most fascinating study either in the book or when one is the happy owner of one. Most of these bedsteads in this country date no farther back than 1800, and belong to the Empire period. One test as to age is worth remembering—as a rule the larger the posts the later the age.

Quite an interesting chapter is given to clocks, in which somewhat of their early history and use is sketched. It was not until 1685 that the tall clock as we know it came into use. Looking glasses have a fair share of our author's attention; and lovely examples of the different styles are given. Lamps and candlesticks and candelabra with their pendants of prisms—all are spoken of, and enough said to make it quite possible for an owner to reach an approximate idea of their age.

We feel that the author is most in love with his subject when he approaches the pottery. He well may grow eloquent over the beauties of Wedgewood and the interest of Old Blue Staffordshire Lusterware—Lowestoft. He does wax eloquent over each, for each one has its own merits. Then for the lover of glassware is to be found a most fascinating chapter. Those collecting Pewter, which has recently come to be such a craze, will find dates and details. Twenty-seven pages are given to old silver ware and one cannot choose what to quote, all is so interesting. We shall say in a few words what he really means—study your old silver, every mark on it means something if you can only get the clue.

Finally a most timely chapter is added on faking. The public is so anxious for antiques that there are always people ready to deceive and profit by the deception. In a postscript the author adds that in a recent bulletin of the Bureau of Manufactures, Department of Commerce and Labor, Washington, D. C., much valuable information may be gathered on the subject of manufactured antiques.

FLORENCE B. WRIGHT.

PICTURES OF THE APOSTOLIC CHURCH[4]

SIR WILLIAM RAMSAY'S long continued investigations in Asia Minor makes everything he writes upon the Pauline Epistles of great historic and archæological interest. This volume will, therefore, be widely serviceable not only to the students of the New Testament for whom it is especially prepared but to all who desire to become acquainted with the conditions of western Asia Minor during the first century of the Christian era.

[4] *Pictures of the Apostolic Church, its Life and Thought.* By Sir William Ramsay, D.D., D.C.L., LLD., Litt.D. Pp. xii, 420. $1.50 net. The Sunday School Times Co.: Philadelphia. 1910.

A HISTORY OF NEW TESTAMENT TIMES IN PALESTINE[5]

NO HISTORY of New Testament times in Palestine could be written without devoting much space to the Maccabaean era which preceded the birth of Christ, and indeed to the whole course of things after the conquest of Alexander. More than half of this volume, consequently, is devoted to that period. So great is the complication of social, religious and political affairs during all this time that wide knowledge of historical documents and broad sympathies with diverse classes of people are required for its proper treatment; all this is possessed by the author so that he has succeeded in treating the subject in a manner which is worthy of unqualified commendation. The volume ends with the wholesale suicide of the garrison at Masada, A.D. 71 (see RECORDS OF THE PAST, vol. V, pp. 368–372).

EDITORIAL NOTES

LECTURE BY DOCTOR MACCURDY.—On 3d of December, 1910, Doctor George Grant MacCurdy of Yale University, lectured at the University of Pennsylvania, his subject being the *Antiquity of Man in Europe*. This was the first of a series of lectures on the *History of Mankind* to be given by various speakers.

OFFICERS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION FOR 1911.—At the recent meeting of the American Anthropological Association held in Providence, R. I., officers for the ensuing year were elected as follows:—President, Doctor J. Walter Fewkes, Washington, D. C.; Secretary, Doctor George Grant MacCurdy, New Haven, Conn.; Treasurer, Mr. B. T. B. Hyde, New York City; and Editor, Doctor John R. Swanton, Washington, D. C.

CINERARY URN FROM KILBURN MOOR.—Yorkshire papers report that in September, 1910, Mr. John Sanders investigated an ancient burial-ground on Kilburn Moor. While exploring a barrow, he unearthed a cinerary urn 14 in. high, 16 in. in diameter at the top and 4 in. across the bottom. It is ornamented with the furrow and chevron patterns, put on by means of the twisted thong and finger tips. It is of elegant form, much like one obtained from a neighboring barrow. In it were cremated human remains, the bones of small animals split open in ordei to get the marrow, and 5 bronze fragments.

[5] *A History of New Testament Times in Palestine, 175 B.C.–70A.D.* By Shailer Mathews, Professor of New Testament History and Interpretation in the University of Chicago. Map; pp. xi, 218. $1.00 net. Macmillan Co.: New York. 1908.

UNIVERSAL RACES CONGRESS.—"The first Universal Races Congress, which will meet in London in June, 1911, will be of considerable interest to anthropologists. It is expected that most of the leading races in the world will be represented. The papers to be discussed at the Congress will be published before the meeting in a separate volume.

"All information about the Congress may be obtained from the secretary, G. Spiller, 63, South Hill Park, Hampstead."—[*Man*, London.]

MAUMBURY RINGS.—The excavations at "Maumbury Rings" near Dorchester for the season of 1910 disclosed among other things, 4 skeletons. Two were lying about 3 in. below the turf line of the northwest terrace of the earthwork and two more to the north close to the entrance of the amphitheater. One skeleton was in a crouching position in a shallow cavity, and another lying on its back with the legs drawn up. Among the smaller finds was part of the base of an inscribed bowl of Samian ware, bearing characters of silver.

ALABAMA ANTHROPOLOGICAL SOCIETY.—We are pleased to note from time to time the spread of interest in archæological and anthropological studies as indicated by the formation of local societies. There has recently come into our hands the *Handbook of the Alabama Anthropological Society*. This society was formed in the spring of 1909, with the object of promoting anthropological study and research. The *Handbook* contains the constitution of the Society, an account of its organization and a list of members together with a preliminary list of collectors and collections of Alabama material and a catalog and bibliography of Alabama mounds and prehistoric works. These lists do not pretend to be exhaustive, but are intended as a basis for further work and as an aid in future explorations.

ANTIQUITIES FROM THE NILGIRI HILLS.—In the fall of 1910 a number of antiquities from sepulchral mounds in the Nilgiri Hills, Southern India, were exhibited in the British Museum. The collection, consisting of bronze bowls with and without stands, a bronze mirror of early Greek type and a number of earthenware pots, was discovered in stone circles from 6 to 14 ft. in diameter which had been surrounded by walls from 4 to 5 ft. high. "The pottery is rather of rude workmanship having rounded bottoms and lids surmounted by figures of men and animals. With the bronze vessels were found a quantity of beads of various materials, but principally of glass, agate, or carnelians; along with these were also discovered some spearheads and other small objects but they do not appear to belong to the same period. The age of these remains is uncertain; neither is it known to what people they may have belonged."

ANIMAL FIGURES IN THE MAYA CODICES.—Volume IV, no. 3, of *Papers of the Peabody Museum of American Archæology and Ethnology*, Harvard University, consists of a discussion of the *Animal Figures in the Maya Codices* by Alfred M. Tozzer, Ph.D., and Glover M. Allen, Ph.D.

The authors undertake to interpret the conventionalized animal figures which occur frequently in Maya codices. Doctor Allen is a zoōlogist familiar with the animals of Mexico and Central America and therefore well fitted to assist in identifying the figures. Stone carvings, stucco figures and frescoes have been studied as well as manuscripts in the endeavor to determine the use and significance of the species represented. Only a small portion of the animal life of the country inhabited by the Mayas is represented. In some cases there is little doubt as to the identification. In other cases the work is more difficult, but in only a few is there any great doubt as to the species. The paper is provided with numerous illustrations of the various drawings of different species identified.

SKELETON FROM GRAVEL PIT IN WORCESTERSHIRE.—Not long ago, at Overbury, a village on the south side of Bredon Hill, Worcestershire, a skeleton was found in a quarry of oölite brash. It was lying 5 ft. below the surface. Evidently it had been built around with rough stones, as there were remains of an arch over the head on one side and over the feet on the other. The floor was roughly paved with flat stones. The enclosure was 3¾ ft. long and 1½ ft. high. The body was reclining with spine slightly bent forward, facing the west. According to Professor MacAlister of Cambridge, the skull is probably late British. Most of the small bones soon fell to pieces, but the long bones were removed fairly whole. On the sole of each foot were about 35 iron nails. The material into which they were fixed was very much decayed. A number of iron nails were found on the floor around the skeleton. The arrangement of these seems to indicate that there was some form of wooden casing inside of the stonework, but there was no trace of decayed wood under the skeleton at the time of discovery. Bits of charcoal were scattered in the soil.

PREHISTORIC BURIALS IN EGYPT.—At the annual meeting of the Egypt Exploration Fund, held in November, 1910, Doctor Naville gave a lecture dealing mainly with the so-called prehistoric burials in Egypt. His chief point was that the people who buried their dead in a "crouched" (perhaps really a sitting) posture must have existed at the same time as a race whose dead were interred at full length, lying on their backs. Without doubt these latter were dynastic Egyptians. Up to the present it has been considered that the crouched burials were a sign of a "prehistoric" people who died out before the advent of the dynastic Egyptians. Doctor Naville's experience shows that on early sites the crouched burials outnumber the extended ones. In a cemetery last year he found graves containing crouched bodies close to those containing extended ones in such manner that the crouched burials were evidently later. Doctor Naville would, therefore, conclude that the race which invaded Egypt not long before the beginning of the I dynasty did not supplant, but lived side by side with the people whom they found. The conquered people were allowed to retain their own burial customs. The conquerors probably excelled only in the use of metal. Doctor Naville considers both races to have been of African origin.

THE FORUM OF CORSTOPITUM.—At the Meeting of the Society of Antiquaries (London) on 24 November, 1910, a paper was read on *The Forum of Corstopitum*. The forum is nearly square. There is a large central court with ranges of buildings on each side, the entrance having been in the center of the south range. The west range was divided into 9 small courts, opening into the central court. The south range was divided into 10 courts, which seem to have opened on the street, not on the central court. The east range appears to have been a single chamber running the length of the court. Not enough of the north range remains to determine the plan.

The walls in some places remain 2 or 3 courses above the foundations. In one portion the walls have been overturned. No stone of a course higher than the plinth course was found in this portion, suggesting that the building as originally designed was abandoned in an unfinished condition. The site was undoubtedly occupied after the abandonment and continued to be occupied to the end of the Roman period. Some of the south courts show traces of two later floors. The date of beginning and abandoning the building must have been very near together. Coins found belong to some part of the Antonine period.

ORIGIN OF THE PHŒNICIAN ALPHABET.—At the meeting of the Society of Biblical Archæology (London) on November 9, 1910, Professor Sayce read a paper on the origin of the Phœnician alphabet. He pointed out that there was no evidence of the use of an alphabet in Palestine before the Davidic era when it was probably introduced. The Greek forms, he believes, show that the names of the letters go back to a very early period and were derived from the pictographs out of which the letters were evolved. To restore the primitive pictorial forms, the letters must be tilted to one side, like the cuneiform characters. The original pictographs were written vertically. Professor Sayce draws the following conclusions from an analysis of the names: "(1) The names were given to the characters before they became letters; (2) the Semitic dialect to which they belong was related to both Canaanite and Assyrian; (3) the users of pictographs were semi-nomads; (4) some of the pictographs indicate acquaintance with the Hittite hieroglyphs; (5) they were, however, an independent invention; (6) some of the characters came to be drawn defectively with broken lines, between the time when the names were given to them and their development into letters; (7) the *samech* originally came after *shin;* (8) the pictographs were grouped in pairs beginning with *aleph,* 'the ox' or 'leader' (*alûph*) and ending with the cross, which denoted the end of a sentence in the Cretan hieroglyphs."

PREHISTORIC SANTA FÉ.—In June 1910, while excavations were being made for a house on LaGarita hill, Santa Fé, a skeleton was found. It is that of a women, probably under 20 years of age. The cranium and some of the long bones were recovered. The skull is flattened at the back on the right side, an artificial deformation characteristic of all the

ancient tribes of the Rio Grande valley. In speaking of the skull, Doctor Edgar L. Hewett said:

It is a typical dolichocephalic skull—the long narrow type. This is of especial interest because of the fact that the Pueblo Indians of the present day are predominently brachycephalic—short, broadheaded, there being from 15 to 25 per cent of the other type among them. It was upon this characteristic that we were able to determine that the ancient cliff dwellers and mesa dwellers of the Pajarito plateau west of the Rio Grande were not identical with the Pueblo Indians, the former having been a perfectly pure stock, 100 per cent dolichocephalic, while the Pueblos are a mixed stock but predominantly brachycephalic. The skeleton found under Mr. Morley's house conforms exactly in type with others that have been found in making excavations about the Old Palace. This fact would seem to relate the inhabitants of prehistoric Santa Fé to the ancient Pajaritans, (the name we have given to the prehistoric culture west of the Rio Grande), more closely than to the modern Pueblos.

This find led Doctor Hewett to make some remarks as to prehistoric Santa Fé and its inhabitants. The modern Pueblos, he states, are composed of a strain of the old Pajaritan stock and a stronger strain from outside. The older culture prevailed because it was suited to the climate, but the physical character of the newcomers predominated.

The ancient name for the site where Santa Fé now stands was "Kuapoge" —the place of the shell-beads near the water. There were 3 pueblos there—a large terraced one on Fort Marcy hill, another on the site of San Miguel church and another in the valley, north of the river. Portions of the walls of the second pueblo still exist in the foundations of the so-called "Oldest House in Santa Fé," built in the XVII century. There is an ancient burying ground under part of the Old Palace. As the building was being altered for museum purposes, there were disclosed portions of an ancient puddled wall, identical with fragments of puddled walls formerly to be seen in the foundations of the Oldest House and under the fortifications of Fort Marcy, To quote Doctor Hewett further:

None of these towns were occupied at the time when the Santa Fé valley was first seen by white men. All were in ruins but the evidences at hand justifiy the belief that if one could have stood upon the spot where the city now stands, looking east from the site of the Church of Our Lady of Guadalupe, 500 years ago, there would have been seen on what we call Fort Marcy hill, an Indian town of considerable size, consisting of one large terraced pueblo and one or more smaller buildings near by, a kiva or sanctuary of the circular subterranean type on the bench half way down the hill side; south of the river on San Miguel slope, a small pueblo two stories high, and passing back and forth from these two towns to the river, then considerably larger than now, the water carriers with their ollas on their heads. In the foreground, where the historic Old Palace has undergone the vicissitudes of nearly 3 centuries, would have been seen a cluster of ruined walls and rounded mounds, the remains of an earlier town, over which some of the earliest houses of Santa Fé were doubtless built.

Director Hewett urges all in Santa Fé who come across archæological remains in the course of building and ditching to inform the museum authorities at once, so that all possible material for the study of the ancient cultures may be properly preserved.

FIG. 1. SECOND STELA IN SIZE AND FINEST IN DESIGN AND EXECUTION SHOWING GLYPHS AND FEATHER-WORK PATTERNS

RECORDS OF THE PAST

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QUIRIGUA

IN latitude 15° 15′ north and longitude 89° west, about 60 miles above the mouth of the Motagua river and one mile from its north bank in the Province of Chiquimulo Guatemala, lie the time worn ruins of Quirigua. Deeply embedded in a tropical forest of giant ciebas, lignum vitæ, corrosa palms and trailing lianes with the massive stelæ gravely sleeping through the ages beneath their coats of thick green moss, it was not until Stevens and Catherwood visited this section that the civilized world first heard of these wonderful remains. Then a tangled wilderness of trees and vines confronted the explorer while the interlocking boughs overhead with heavy festoons of parasitic growth and dense foliage enveloped all in a semi-twilight. Underfoot masses of soft humus were overlaid here and there by some fallen monarch of the forest covered with damp moss and clinging creepers.

However, the great banana plantations of the United Fruit Company are now surrounding the ruins, while the actual site itself, due to the archæological interest and far-sighted policy of Mr. Minor C. Kieth, vice-president of the same company, has been carefully cleared and today stands in a great natural park which is but nine thousand feet distant from the station of Quirigua on the Guatemala and Northern Railroad.[1]

[1] It gives the writer pleasure to announce that the American Institute of Archæology in conjunction with the United Fruit Co. is now engaged is restoring the ruins under the able direction of Dr. Edgar L. Hewett.

However when the writer visited this place the forest still held sway, and paths from one monument to another had to be cut by machete men, though the proximity of the railroad made its access easy.[2]

Quirigua and Copan 50 miles to the southwest, form the southern group of that great highway extending from the south to the Mayan ruins of Yucatan and the Mixtecan-Zapotecan ones of Oaxaca, along which are strewn the wonderful remains of a civilization that was old when we ourselves had not emerged from the depths of savagery, and which if our scant knowledge of the Mayan inscriptions is to be trusted is coeval with, if it does not antedate the culture of ancient Egypt.

The ruins of Quirigua are divided roughly into two groups, one to the north, one to the south, and consist of three principal structures with numerous great stelæ and animal stones, partly distributed about a plaza which was formerly paved with large undressed flat rocks, but is now covered with about three feet of soft humus and alluvial deposits from the river which at times encroaches upon its site.

To the south a long terraced structure with projecting wings rises about 30 ft. in height and is surmounted at one end by what was probably a temple, one small room of which has been excavated. The masonry here is of a high order—the doors apparently low with stone lintels—but too little work has been done to furnish an adequate idea of the nature and uses of the main building itself. To the front of the terraced structure is the wonderful, elaborately carved effigy stone known as the Great Turtle, which measures over 7 ft. in height by 9 ft. in length, and about 11 ft. in extreme width, the circumference being about 33 ft. and the weight approximately 27 tons. It stands on a foundation of three large stones and is richly decorated on all sides and upon the convex top. Many hieroglyphics are carved in close proximity to the head and are finely sculptured also upon its back. The accompanying photograph will give a much clearer idea of this remarkable monolith than it is possible to convey with the pen. The entire surface was probably colored in times past with the deep Pompeian red which seems to have been so popular among the early native civilizations ranging from Xochicalco and Teotihuacan through Mitla to Quirigua.

Nearby is a much smaller circular one—3 ft. 4 in. in diameter by 2 ft. 3 in. in height—upon which are carved a central seated figure in rough outline and poise somewhat similar to figures at Palenque and Xochicalco, and surrounding which are a number of glyphs, the whole being encircled by a rim of other glyphs of similar character but more exact arrangement. A large reptilian head of sandstone lies prostrate a short distance away, and seems to have fallen from its original position.

At the north end of the group of ruins rises another terraced structure of large blocks of stone and marble with three great stelæ along its southern base, the most eastern one of which is unique among the many monoliths of this section and, with one or two exceptions, in all Central America, as

[2] The writer shall always remember with gratitude the valuable assistance and the hospitality of Captain William Owen of Guatemala City and his family, and of Messrs. Cutter and Peters and Smith of the United Fruit Co.,—whose courtesy and interest will ever remain indelibly associated in the writer's mind with his stay in Guatemala.

FIG. 2. THE GREAT TURTLE. NOTE THE RICHNESS OF THE CARVING

FIG. 3. FRONT OF STELA WITH GLYPHS AND PICTURE WRITING ON SIDE

it contains not only the conventional Mayan glyphs on its sides but above them a series of picture writing. Thus as an open sesame to the past it may some day take rank in a lesser way with the Rosetta Stone of Egypt. At present it is of special interest not only on this account but owing to the excellence of its scupltured faces which front the north and south. The head on the north side stands out in bold relief with the elaborately elongated headdress, containing superimposed fantastic faces, and the large ear ornaments characteristic of Quirigua. The treatment of the beard here and throughout the ruins follows the Egyptian style strikingly portrayed in the statues of Kephren of the IV dynasty, and of Rameses II at Luxor, while the lips are coarse, the nose heavy and the eyes full and well placed. Indeed these are all attributes common to most of the other stelæ scattered throughout the ruins. Intricate designs of conventional figures with feather-work patterns weave a network of rich carving over the remainder of the stela. This monolith is 19 ft. 4 in. in height, 5 ft. 3 in. in width and 2 ft. 3 in. thick.

FIG. 4. GREAT LEANING STELA—THE LARGEST OF ALL

Seventy-five feet eight inches to the west is situated the middle one of the series of three, rising about 12 ft. 8 in. above the ground and containing a number of regularly spaced glyphs on all its faces,—while 49 ft. beyond lies the last and most westerly one, which is 14 ft. 2 in. high, and 33 ft. 7 in. to the north of a great animal monolith possibly suggestive of a smaller turtle.

This notable effigy stone faces the south and measures over 12 ft. in length—having long curved claws and on each side a human face surmounted by what might be called an animal mask.

Sixty-three feet beyond this stands the famous leaning monolith—the greatest of all the stelæ. It is 24 ft. 6 in. above ground, $5\frac{1}{2}$ ft. wide, by 4 ft. thick and leans about $12\frac{1}{2}$ ft. out of the perpendicular. To maintain this position in the soft earth in which it is embedded, it must extend at least an additional 6 ft. further. The north and south faces are richly carved with the usual decorations including the bearded face with prominent nose and large ear ornaments and the elongated symbolical headdress

with different combinations. The right hand grasps a manikin scepter opposite which appears a shield, probably held in the other hand. On such a large scale is this imposing monolith that the nose of the face on each side is over 10 in. long and the mouth from 7½ to 8 in. wide, while the sides each contain 40 glyphs. Truly the ancients did their part in presenting their records to us, but as yet "he who runs" may not read the Mayan hieroglyphics.

Nearby is another great animal stone—6 ft. high by 25½ ft. in circumference—known sometimes as the Iguana. A head surmounted by a very distinctive headdress rests upon the shoulders of a woman without legs or feet but with arms reaching down to the ground.

The most artistic of all the stelæ, which is also the second largest in size, is located but a short distance from the Iguana. It measures 23 ft. in height, 4 ft. 2 in. in width by 3 ft. 2 in. in thickness and is carved with a richness of design and exactness of detail from the very base to the gracefully finished top which proclaims it a product of the highest development reached in this section and in all probability the latest of the Quirigua monoliths. The usual bearded face is present, with, in this case, two superimposed tiger heads which are doubtless indicative of rank, above which appears a smaller one. The right hand clasps the scepter with a manikin at the end while to the left appears the tasseled shield. Numerous subsidiary masks of the conventional fantastic type in full face and in profile, decorate this wonderful stela while amid the multiplicity of designs appear tasselated patterns and the graceful tracery of featherwork. Here, as in most cases, the feet are turned outward in a straight line and seem to rest on a platform or decorated base—the sandals upon them being quite ornate with faces in profile at the back. About 800 ft. south lies a truncated pyramid with base lines measuring approximately 150 ft.

Among the remaining distinctive monuments is that one known both as the Queen, and Enano or the Dwarf. It faces south of west and is 11 ft. 4 in. high, 4 ft. 4 in. wide and 3 ft. 6 in. thick, the head and headdress measuring 5½ ft. in height and being out of all proportion to the size of the monument. The front head is 1 ft. 3 in. wide, while that on the back is 1 ft. 5 in. in width and 1 ft. 6 in. in height. A scepter ending in a full figure of a manikin with strong simian resemblances is held in the right hand, the shield also being present in the left,—but not only does the treatment of the headdress differ from the others described in its lack of masks of ferocious character or aspect, but the entire appearance of the design is more peaceful in subject and outline though of a comparatively low order of artistic merit.

Eighty-three feet due west is a fallen stela which is 16 ft. long, 4 ft. 7 in. wide and 2 ft. 9 in. thick. It is broken about 3 ft. from the base.

All the monuments are of a coarse sandstone formation and were apparently transported from the distant quarries in the rough and carved upon their present sites. The remains of a large canal running from the great terraced mound at the north end of the ruins to the river affords an idea as to the probable manner in which the transportation problems were met and overcome on the banks of the Motagua river as they were, so often in a similar fashion, on the banks of the ancient Nile.

FIG. 5. STELA AT COPAN SHOWING DIFFERENCES IN TYPE AND CARVING FROM THOSE AT QUIRIGUA

However remarkable the feat of moving such immense masses as the Great Turtle and the leaning monolith may appear—and before they were carved to their present lines they must have been still larger—Quirigua is by no means unique in this respect for, though the monuments are the highest known of the native prehistoric monoliths on the American continent, the Calendar Stone of Mexico—22 ft. in diameter by 3 ft. in thickness and weighing 24 tons— and the famous granite blocks in the fortifications at Cuzco, Peru, which measure in some cases as high as 38 ft. in length by 18 ft. in width and 6 ft. in thickness—and the well-known Piedras Cansadas

FIG. 6. ANIMAL STONE WITH STELA IN BACKGROUND

—Tired Stones—of Ollantaytambo nearby, are striking examples of what numbers and patience have accomplished in the western hemisphere in days gone by without the aid of machinery; while the huge obelisk of Queen Hatshapshut at Karnak,—109 ft. high and weighing 367 tons,—and the vast statues of Rameses the Second—one of which weighed as much as a thousand tons, cause the modern world to wonder at the industry and indomitable perseverance of the Egyptians in much the same manner as Herodotus recorded the admiration of the ancient world for the fact that the Pharaohs employed 2,000 men for three years in the transportation of one stone from Elephantine to Sias.

The monuments of Quirigua show an analogy to the ones of Copan in treatment and outline though the latter are of higher relief and richer design and finish in comparison with the larger and apparently older ones of Quirigua. The absence of the frequent alters of Copan is also noticeable and while the great monolithic masses are on a scale that is truly inspiring they bear the same relation to their nearby prototypes that the early Egyptian construction did to the more elegant examples of the XVIII and XIX dynasties, or the Doric types in Greece to the Ionic and the Corinthian.

Indeed while it may be maintained that the arrangement of the monuments displays a lack of full artistic development and a well balanced sense of symmetry such as is exhibited in the wonderful ruins of Mitla and in the terraced formations of Xochicalco, on the other hand the profuse decorations of Copan may be considered as denoting a less vigorous condition—the possible beginning of a period of decadence such as now confronts the English nation. However in the carving of the finest stelæ the city by the Motagua reached a degree of artistic excellence and displayed a development which approached, if it fell short of, the zenith

of barbaric civilization. Sufficient work has not been done at Quirigua to demonstrate the presence or absence of the uniform vaults discovered under some of the stelæ at Copan—nor of the isolated tombs also encountered there.

The essential features of the hieroglyphics are practically the same in the two places, however, as is the orientation of the buildings and in some respects the secondary grouping of the stelæ. The inscriptions which they contain, it is not possible with our present knowledge to decipher accurately to any extent though most of the period symbols and the chronological signs are known, the records in nearly every case displaying an initial date with the great cycle, cycle, katun, ahau, chuen, etc. of their erection or dedication.

To correctly understand the nature of the Quirigua glyphs and the extent of our knowledge regarding them, a brief review of the Mayan chronological system is advisable.

Owing largely to the early observations of the Spanish priest Diego de Landa who went to Yucatan in 1540 and who came in contact with many who could still understand the codices, our knowledge of the date symbols of the four extant codises, i.e., Codex Tronaus, Codex Cortesianus, Codex Peresianus and Codex Dresdensis—is fairly accurate, and these, especially the Dresden Codex, closely correspond to the glyphs on the ruins and monuments of the region of high prehistoric culture in Central America and Southern Mexico. Unlike the Egyptian hieroglyphics, which they are only a few steps behind, and the Assyrian cuneiform inscriptions the Mayan system seems with few exceptions not to be phonetic but symbolical probably embodying the characteristic polysynthetic principle of the languages of the New World and is likely compounded of a number of primary symbols of related ideas.

The year was divided into 365 days, consisting of 18 months with 20 days each and a supplemental period of 5 days, and always began with the month Pop, while the tonalamatl, embracing a term of 260 days, was used as a ceremonial or religious period as among the Nahuas. The number of days, months, etc., were expressed by special symbols, and were also denoted by another system which employed the dots and lines so frequently seen in the Mayan inscriptions— each dot representing a single day up to 5 which was expressed by a straight line, each dot in connection with this line denoted an additional day up to 10 which was expressed by two parallel lines, and so on until 15, denoted by three lines, and to 20 which had a separate symbol. Thus — = 5; $\overset{..}{\text{—}}$ = 7; and $\overset{....}{\equiv}$ = 19. As one space to the left in our decimal system increases the value of the number by 10, the Mayan vigesimal system (probably primarily derived from the number of fingers and toes) increased twenty-fold each step or series from the bottom upwards, i.e., the dots or lines having 20 times the value in each step to that in the step below excepting in the third place which increased by eighteen. Thus in the second period, . = 20; ... = 60; and — = 100; while in the third, . = 360; in the fourth . = 7200, and so on. The various steps were also noted by special symbols.

As our spaces are named tens, hundreds, thousands, etc., these steps following Thomas's classification have been called beginning at the bottom,

days, chuens, ahaus, katuns, cycles and great cycles—apparently the highest limit though Brinton maintains that the system was carried still further. These taken in reverse order are often denoted by modern writers by whatever may be the designated number of each, as 9–6–10–2–14–5, the terms great cycle, cycle, katun, etc. being omitted.

According to Goodman the latest initial date at Quirigua is 55–3–19–2– 18 × 20—7 Ahau—18 Pop, in other words 2840 years subsequent to the average initial dates on the other stelæ. This of course does not mean that the latest of the monoliths was erected nearly 3000 years after the others but that the inscriptions refer to events which occurred at or were reckoned from a date 2840 years subsequent to the reckoning on the others.[3]

When we enter upon Mayan chronology we indeed embark upon a somewhat doubtful and uncertain sea whose confines are lost in the dim mists of the hoary past, for again citing the same authority, the 9th cycle of the 54th great cycle embraced a date at which all dates except the cycle and great cycle ended and began and could only occur at intervals of 18720 years! The Codex Dresdensius records a series of 34059 years, 9 months and 13 days there being a date at the beginning and another correct one at the end—an eloquent tribute to the mathematical ability of the Mayan priests! How many of us even with our advanced mathematics would care to calculate the exact day of the week and month to which 34059 years, 9 months and 13 days from today would bring us? While to correctly sound the depths to which the Mayan chronological system penetrates would, at the present time, seem almost as vain a task as Caligula's attempted duel with Jupiter or Xerxes' chastisement of the Bosphorus.

Figure 7 follows Thomas' classification of the symbols of the great cycle, cycle, katun, etc., while in Figure 9 we see a copy of the inscription on the side of one of the stelæ at Quirigua. According to the above authority the large quadruple glyph at the top, found only at the beginning of an inscription, is a symbol for the great cycle and, with the number characters and the immediately following date glyph, forms an initial series while the left half of each of the following 6 double glyphs is one of the numbers ranging from 1 to 19, being in their respective order—reading from left to right across the double column, and the next line following in the same manner, 9–16–10–0–0. These numbers are followed in the right half of each glyph by the symbol respectively of the cycle, the katun, the ahau, etc., in the order above indicated, thus making the first glyph read,—9 cycles; the the second, 16 katuns; the third, 10 ahaus; the fourth, 0 chuens; the fifth, 0 days, while the sixth glyph is the date of the day—1 Ahau, and the twelfth glyph the date of the month—3 Zip—this being the terminal date of the series. Thus we can obtain an idea of the extent of the chronological side of the inscription.

The Mayan priesthood was not an exception to the almost universal rule which characterized their calling in most ancient lands, and seemed to delight in symbols for their own use which they alone could understand and which were mysteries to the common laity.

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[3]*Biologia Centrali Americana. Archaeology,* Appendix. *The Archaic Maya Inscriptions.* *By* J. T. Goodman (1897), p. 148.

FIG. 7. MAYAN SYMBOLS FOR TIME PERIODS. AFTER THOMAS

FIG. 8. PORTION OF INSCRIPTION FROM COPAN

FIG. 9. INSCRIPTION ON STELA AT QUIRIGUA. AFTER MAUDSLAY

Figure 8 portrays a portion of an inscription at Copan and shows the similarity between the glyphs in the two places.

The history of Quirigua has long been lost among the buried centuries and the moss-grown stones of the ruins, around which tradition refuses to hover even fitfully. The past is as inscrutable as the placid graven faces themselves that have looked out so patiently upon the toil of the passing years. Whether Quirigua formed a portion of Votan's semi-mythical empire of Xibalba which united the Mayas in their Golden Age—whether it was a governmental center like Mayapan or a sacred city like Izmal, it is impossible to state with any degree of certainty at the present time. Among the various ramifications of the Maya family the offices of king and high priest were often closely connected and depended one upon the other for support. Votan, Zamna and Cukulcan with the other semi-mythical culture heroes of the Mayas acted both as high priests and kings, while at Chichen-Itza the earlier theocratic government gave way later to the rule of the high priest of the Empire, a member of the royal family of the Cheles.

It might therefore well be surmised that whatever the nature of the government at Quirigua—whether presided over by a sacredotal hierarchy or a monarchical dynasty—the religious side was strongly developed and exerted upon its history a powerful influence, one that has doubtless been brought down to the present day by the carved monoliths. In fact, as has been so frequently noticed, there has been practically nothing of the war-like discovered here—a peacefulness and placidity of expression that is marked, distinguishes the carved human faces, and, while the emblematical devices display in many cases designs of grim outline, they are of a religious and political rather than of a military nature.

Some of the monolithic masses have been variously spoken of as altars and sacrificial stones, for although Cukulcan forbade human sacrifices and the Mayan records are free from the seas of human blood that formed such a blot upon the Aztecan civilization, there are numerous cases of human sacrifice having been practiced on a limited scale within their confines as in the great pit or pool at Chichen–Itza, and among the Pipiles.

FIG. 10. MIDDLE STELA OF GROUP OF THREE

FIG. 11. MOST INTERESTING OF GROUP OF THREE

FIG. 12. STELA SHOWING GLYPHS AND PICTURE WRITING ABOVE

FIG. 13. "THE QUEEN," OR ENANO, OR THE DWARF

That these rites obtained here has never in any way been demonstrated. In fact the undoubted antiquity of the ruins brings them in closer relation to the ancient glory of the Mayas when the religion was purer, the moral tone higher and later intrusive elements absent.

Squire considered the kindred stelæ of Copan, after a comparison with a Ceylonese prototype, as denoting phallic worship, citing in conjunction with the worship of the Priapus in the East the fact that the common phallic symbol was an erect stone sometimes in a rough state, sometimes sculptured; while Bancroft quotes the Abbe Brasseur de Bourbourg as taking the same view in considering the plain cylindrical pillar found in so many places "the representation of the volcano—the goddess of love and whence it issues as the symbol of new life." Gamma speaks of the Mexican God of Spring—hence of renewed life,—Xopancalehuey Tlalloc, as being frequently represented by means of a pilaster upon which the face was carved, the figure of the god in such cases being omitted.

It therefore seems possible that phallic worship might have been a moving factor in the erection of these monoliths though the writer does not incline to the belief that such was the case—at least as to the primary motive. It must be remembered that a monument to any divinity or

individual in memory of any event, for the purpose of permanently preserving important records or for a combination of these three objects would most conveniently have taken this form, as the obelisks and pylons in Egypt were so employed and the isolated columns and shafts among ourselves are even today used for similar purposes. It is interesting to note in this connection that there are many such monoliths standing now upon the site of Aksum in Abyssinia the ancient capital of Ethiopia.[4] They range up to 60 ft. in height, some of them being plain and roughly dressed, others containing apparently ornamental features consisting of a treatment of dots and lines resembling those with which we have become familiar among the Mayas, while the most highly developed ones are elaborately carved in house patterns. Stelæ were also in use among the Hittites, on a much smaller scale—the one at Restan being only 6½ feet high.[5]

That there was a symbolical meaning attached to at least some of the Quirigua monuments seems evident. The Great Turtle is probably one of the most important as it will be remembered that this design occupied a very prominent position at Uxmal and is encountered also at Copan, and that the summer solstice which occurred in the seventeenth month —Kayab—was assigned to the tortoise which even gave the month its symbol consisting, as noted by Dr. Schellhass, of the head of a

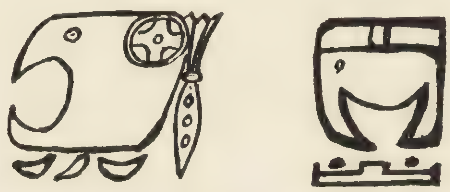

FIG. 14. GLYPHS OF THE MONTH KAYAB IN WHICH OCCURRED THE SUMMER SOLSTICE. FROM MAYAN CODICES

tortoise with the sun symbol in place of the eye. The winter solstice occurred in the eighth month—Mol—and was similarly assigned to the snail, which thus became the symbol of birth and death as the birth and death

FIG. 15. GLYPHS OF THE MONTH MOL

of the sun took place at that time. It is extremely probable that the so-called Iguana, a companion stone of the Turtle, either represents in reality a conventionalized snail or is a substitute for it. If this hypothesis be erroneous it may still be found to be of symbolical interest as the lizard, of which

[4]See Records of the Past, Vol. III, part 2, pp. 35-42.
[5]See Records of the Past, Vol. IX, part 2, pp. 67-69.

family the iguana is a member, was frequently used in connection with the four cardinal points together with the deer, bird and fish. Unfortunately to the best of the writer's knowledge no observations of an astronomical character have been made in connection with these monuments.

The headdresses, as before stated, also had a symbolical significance, probably denoting rank or distinctive attributes while the other details of personal adornment as the ear-ornaments and bracelets, common likewise to the carvings of Xochicalco, Palenque, Ococingo, etc., seem to have their special meaning. Ximenez states that piercing the ears, nose and lips was a mark of rank and authority in Guatemala and was confined to those of kingly position while the Popol Vuh speaks of the House of Nihaib, the second in rank among the Quiches, as possessing among others the following titles—"Ahau Galel, Lord of the Bracelets, or of those who have the right to wear them, and chief of the house of Nihaib;" and "Ahau Galel Camha, Lord of the Bracelets and seneschal." Therefore it is easily seen that great importance was attached to these insignia among the Mayas. but a more detailed knowledge of their significance is lacking.

And thus we are left at the end of our quest not very far from where we began—we have indeed surmised from the surrounding evidence that the civilization at Quirigua was probably Mayan; reasoning from analogy and the graven monoliths we may feel reasonably certain that a powerful priesthood was in evidence; while the excellence of the carving, the ability to quarry and transport such great masses and the culture that the use of the glyphs would seem to imply all point directly to an advanced stage of development. Yet as to a more exact knowledge of the remains that have come down to us; as to the manners, customs and lives of the inhabitants; the historical and political connection of Quirigua with other ruins and the age and cause of its foundation, zenith and decline, we indeed find ourselves but in the first periods of research.

Apparently no clue is to be encountered as to the identiy of its founders or their history in the mythology or traditions of the nations which occupied Guatemala when the Spaniards first conquered the country. The records of the Quiches, Cakchiquels and Mames in the north and the Pokomans in the south are alike silent upon the subject.

The similarities to Copan have already been noted and are still further emphasized by the fact that the glyphs at both places which contain initial series where the number of cycles is 9 begin with 4 Ahau—8 Cumhu, evidently the date of some very important event or epoch in the ancient history of this section, and one from which they reckoned.

The ruins with which we are familiar were evidently those of a public or religious character,—the houses of the nobles, the homes of the multitude were either located elsewhere or if adjoining were of a much more perishable nature and humbler conception, the vast preponderance of attention being woven around the central or inspiring idea. The lack of beasts of burden and the consequent relatively low position of commerce removed the scene of importance and life from the streets to the concourse or plaza—the meeting ground for the political, religious and social activity of most barbaric nations in a similar state of advancement.

FIG. 16. STELA SHOWING TYPICAL FACE, EAR ORNAMENTS AND HEAD-DRESS

The absence of all tradition regarding the remains, the dates on the stelæ and the condition of the ruins in conjunction with what we know of Mayan history tend to place that distant day when Quirigua teemed with life and the ashes were warm upon the altars of her gods, far back through the centuries. In a section where frosts are unknown and the excessive moisture and warmth covers all the monuments with a heavy coating of moss while the tropical jungle protects them even further from the sun's rays and the eroding force of nature, there can be little surprise evinced that even the softest materials are preserved in such an excellent condition, and that they should bring down to us as clearly the bold lettering of the records of those who lived and wrought so long ago in the morning of the world. For, in the words of Bacon is not "Antiquity as we call it the young state of the world, the present time the true antiquity"?

A. Hooton Blackiston.

FIG. 17. POTTERY FROM OAXACA, MEXICO. SHOWING WIDESPREAD EXTENT OF EAR ORNAMENTS AND SIMILARITY IN TREATMENT TO THAT OF QUIRIGUA

From Blackiston Collection, National Museum

THE COINS OF ANTONINUS PIUS

SECOND PAPER

ON the Roman calendar, against the year corresponding to 139 of our era, were the words, 'Antonino Pio Augusto secundum, C. Bruttio Praesente secundum, Consulibus.' For our purpose, it means that Antoninus, by virtue of his station, was one of the eponymous Consuls of the year,—Consul for the Second Time. It was therefore to be expected that the national currency too should indicate the change of date in terms of the Emperor's new honor. No very great flurry, however, seems to have been precipitated among the crown moneyers, at least for a time. Merely replicas of the last gold and silver coins were struck, differing from the recent issues of 138 only in date,—that is, the COS. DES. II. of the reverse now became COS. II. The Imperator was, as before, laureated on some obverses and uncrowned on others. The legend of the obverse was still the same long one that had been quite generally used, with but slight variation, ever since Antoninus's adoption:

IMP . T . AEL . CAES . HADR . ANTONINVS,

though these new coins of 139 seem not to have employed the alternative form HADRI.

To our surprise, Antoninus permitted the recurrence of what looks to be an indecorum in his last mintages, in that the two most prized factors in his name, Augustus and Pius, still appeared upon the reverse. It seems singular that the Emperor should have consented to this arrangement even once, especially when that occasion had been his first use of the name Pius, but he had not even heeded the hint thrown out by the Senate in their recent issues of the old year, in which they had inscribed the two names in their more appropriate place on the obverse. The inscription of the reverse on the Emperor's own coins remained for some time through the year:[1]

AVG . PIVS . P . M . TR . P . COS . II.,

even with the important addition of Pater Patriae. Among the rarer coins with this type of reverse may be mentioned a *quinarius*[2] whose device was a figure of Equity,—Æquitas, as she is elsewhere definitely named, and a silver piece,[2] presenting a Victory, marching.

There were several issues in bronze of the various sizes that marked the beginning of the new year,—introducing an important alternative on the obverse. While the largest sizes presented Antoninus in the usual laureate crown, the issues of 'middle bronze' were divided between the uncrowned portrait and the radiate crown. Thus, for the first time, Antoninus now appeared in the presumptuous emblem of deity which Nero had popularized among the Imperators. It is refreshing, however, to know

[1] Eckhel, p. 4, B, and p. 11.
[2] Akerman, p. 255, nos. 5 and 6.

that Pius yielded but slightly to this practice, for his coins are found to contain but a comparatively small number of radiated issues. It seems quite in keeping with his reputation for modesty that he should have refused a too generous use of the *corona radiata*. After this first lapse, he allowed an interval of 6 years to pass, i.e., until the year 145, before again consenting to its use.

The legend on the obverse of these bronzes repeated the formula of the Senate's last issue of 138, corresponding to that of Coin no. 1, illustrated in the first paper of this series,[3] and reading:[4]

IMP. T. AEL. CAES. HADR. ANTONINVS. AVG. PIVS.

Again we note the more deferential placement of the AVG. PIVS., as if repeated protest against the rather indifferent attitude of Antoninus himself in his last few issues.

The reverse of one group[5] of these, including the "first brass" and a medallion, was a gracious souvenir of the new year, evincing an appreciation of the new régime which the good Emperor had obviously striven to establish. It bore witness especially to the conquest of the Senate, who it seems, had not been in too great haste to acclaim their new Imperator. The device was simple and yet elegant in its talismanic effect,—a laurel wreath, containing within its circuit the inscription:

S. P. Q. R. A. N. F. F. OPTIMO. PRINCIPI. PIO.

The presence of S. P. Q. R., the state monogram of Rome,—'Senatus Populus-que Romanus', precluded the necessity of accompanying these issues with the otherwise invariable S. C., 'Senatus Consulto,' the Senate's stamp of authority on its own coinage. The A. N. F. F. were the initials of a popular phrase, 'Annum novum faustum felicem.' Supplying some verb like 'adprecatur,' we have a genuine New Year's greeting:—'The Senate and Roman People Wish a Prosperous and Happy New Year for their Best and Pious Prince.'

This 'Happy New Year' issue, however, cannot lay any claim to uniqueness. It was a repetition of like memorials that had been decreed during the reign immediately preceding. Several such overtures of acclamation had been tendered to Hadrian. There had even been one issue in which he too had been styled 'Optimus Princeps.' The epithet itself harks yet farther back to the days of Trajan, with whom it had been first a popular soubriquet and subsequently a legalized *cognomen*. But these bronzes of 139, together with an issue of 'middle bronze' in 145, are the sole evidence of any disposition to call Antoninus by a similar name. It has been suggested that both he and Hadrian had full right to be styled Optimus by inheritance from Trajan, for, in their case, there is no historical record of any specific decree awarding it. Happily, Optimus did not become a

[3] Cf. RECORDS OF THE PAST, Jan-Feb., 1911, issue, p. 24.
[4] Eckhel, p. 4, E.
[5] Eckhel, p. 4, E, and p. 11. Akerman, p. 262, no. 21.

fixture with Antoninus. It would have detracted from the majesty of the one and only name Pius.

An interesting problem has been precipitated by a farther inquiry into the dating of these New Year issues, for it is not an absolute certainty that New Year's Day itself is meant. They were evidently struck before the award of Pater Patriae,—otherwise the initials P. P. would be found somewhere upon the coin,—while the style of legend upon the obverse, as we shall find, was abolished during this same year of 139. But the suggestion has been made, that, not January the First may here be intended, but perhaps the Emperor's own birthday, in October, or again the national birthday, the festival of the Palilia in April. The probability of either of these latter surmises may be enhanced by the absence of P.M., the sacerdotal title. While it is true that Antoninus very evidently neglected the use of P. M. at some early date during this year and ceased it altogether soon after 140, it is not likely that the Senate would presume to take the initiative in so radical a matter. As both the Emperor's birthday and the Palilia would fall later in the year, the omission of P. M. would by that time have been well exemplified on Antoninus's own private mintages. But, in the absence of more convincing logic, these bronzes will continue to be referred, in the popular mind, to New Year's Day of 139.

Mention has been made of the fact that a medallion shared as a vehicle of this New Year's greeting. Though other medallions, whose time is not even thus broadly suggested, may have been issued previously, this of New Year's Day, 139 A.D., is the first, with approximate date, in the list of bronze medals that have made the reign of Antoninus Pius famous in numismatic annals. Comparison with the monies of other reigns shows that only one other Emperor, and that was his own grandson Commodus, exceeded Antoninus in the coinage of the medallion. Including those that were struck in honor of Augusta Faustina, the number was considerably in excess of Hadrian's, as the latter's too had much exceeded those of any preceding Emperor. Contrary to the practice of his immediate predecessor and, desultorily, of other Emperors, who essayed medals in silver too, sometimes even in gold, Antoninus employed only bronze. This may account in some measure for their multiplied number. But the style and workmanship were now brought to such perfection, the portraits were so well executed, the devices of the reverse were so varied, so instructive, and so fascinating, that merely to mention 'a bronze medal of Antoninus Pius' is at once to create an alarm of interest. Something of this enthusiasm may be understood from two other medals which belong to this period of the reign.

The reverse of one[6] of these presents a scene from the romance of Bacchus and Ariadne. The two are standing in a chariot, driving to the right, an arm of each about the other's waist. Ariadne is on the extreme left, and nearer the foreground, unclad, with hair unbound and streaming down her back. Bacchus holds forward an inverted thyrsus-rod over his left shoulder, his *pallium* falling loosely over his left arm. The car is drawn

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[6] Akerman, p. 262, no. 19. A cut is shown in Stevenson's Dict., p. 80.

by an oddly-mated team,—a female panther, with a collar about her neck and her head downward in rather dejected attitude, seeming to leave the heavier pull to her mate, a satyr. The latter makes a comical figure, with his right hoof about to be planted, his right arm extended as if to aid the forward momentum, his ears cocked backward, and his beard blowing in upon his breast. On the exergue below the device is the inscription which places the medallion with this year 139:

P . M . TR . P . COS . II.

The inscription is in two rows,—COS . II. being in smaller lettering below.

To the same era may belong also one[7] of the celebrated bronze medals commemorating the Æneas-myth, though there is in its case less from which to determine accurately. As all the others of its kind are of later date, there is some hesitation in placing this particular one so early. But, as the reverse contains only a pictorial device, there is no other recourse but in in the style of formula on the obverse. We find there, surrounding a laureated head of Antoninus, the type of legend which marks the incipient era of his coinage, the first year of his Principate,—'the Emperor Titus Ælius Caesar Hadrianus Augustus Pius.' As we shall see, no authentic coins with this formula and with any determinable date are found for any period after 139. All that may safely be said is, that it must have been issued after the awarding of Pius and before that of Pater Patriae. With that premise, it could even date from the closing months of 138, for the legend of the obverse agrees equally as well with the period of COS. DES. II., as with that of COS . II. Perhaps the alternate form HADRI. which is here used may also point to 138, for all the other coins of 139 seem to have admitted only the shorter form HADR. Then too, the Pietas of Æneas which is here exemplified in the device may point to a synchronism with the awarding of the name Pius. But there is greater plausibility for the later date, i.e., within the year 139.

Among all Antoninus's coins with determinable or even approximate date, this present medallion is the first, chronologically, whose reverse is without any inscription whatsoever. Under the early Principate, such mintages were a rarity, though several Emperors, the Flavian House especially, had authorized coins with simply S . C. upon the reverse. But, since the accession of Trajan, there had been a gradual increase in the practice, until now Antoninus evinced a decided fondness for that type, especially in the medallion. Considerably more than half of these are uninscribed, being purely pictorial. As the compass of the medal was larger and the device correspondingly clearer, there was little need to label a popular scene or allegory, while the usual epigraphic recapitulation of official honors would certainly have been an intrusion.

No inscription, for instance, was needed to interpret the device of the medallion under discussion, for it belonged to a cycle of story as familiar

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[7] Eckhel, p. 31; Akerman, p. 264, no. 44.

to every Roman as his *abecedarium.* It was an eloquent tribute on the part of the Senate, that saw in their Imperator Pius a resemblance to the 'pious Æneas' of the national epic. Antoninus giving his arm to the aging Hadrian before the assembled Senators, once caught their fancy and the metaphor was ever afterward irresistible. The Æneas-myth thenceforth furnished subject-matter for a large number of the Antonine medallions.

This present medal was a composite of several episodes in the legend, but chiefly an illumination of the famous scene where the Trojan prince discovers the white sow with her litter of thirty—one of the most prized of all local Latin myths. The gate of a city is shown,—but whether of Alba or of Lavinium or of Evander's town can not be determined; above it, as if within the fortifications, the sow and her piglings. In the background Æneas is revealed, carrying Anchises on his shoulder,—while, besides, are shown an altar and a round temple. The perspective is crowded,—several chapters in the myth are shown in one circumference,—the moment of the escape from Troy, the landing in Italy, and perhaps the Ara Maxima and the Vesta-Temple.

Many others of the numerous medallions may have been contemporaneous with these two, but, as they are not of determinable date, we are not justified in considering them here. The majority of those that have date are thrown later in the reign, so that it may be questioned whether there were many issues thus early, seeing that the medallion was only an occasional issue at best. We may as well consider the Ariadne and the Æneas medals as forerunners of a type that was eventually to become one of the distinguishing features of Antoninus' coinage.

Considerable interest attaches to a 'large bronze[8]' that was struck at some time during this earlier period of 139, at least previous to the awarding of Pater Patriae. Hitherto the prevailing norm of legend had been:

IMP . T . AEL . CAES . HADR . ANTONINVS.

in which CAES. interrupts the series of family names. Only in the few instances where the regular *praenomen* had been omitted, had IMP. and CAES. been thrown together to lead the formula. But this new bronze, while still retaining the family *praenomen*, restored the antique style that had not been in vogue since the days of Galba. The latter, as was observed in the first paper of the series,[9] had been the only other Emperor to employ all his family names on any one coin and yet keep them in an unbroken group. We now read, in Galban style:

IMP . CAES . T . AEL . HADRI . ANTONINVS . AVG . PIVS.

Even so, the formula was yet unique in containing, as no other coins had hitherto done, the adoptive name in addition to the regular inherited three.

Significant though this last innovation was, suggestive of a tedium in the old styles of formula, many years elapsed before this particular type

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[8] Eckhel, p. 4, D.

[9] Records of the Past, Jan.-Feb. issue, p. 21.

was again essayed. It remained for long a lone example, not to be renewed until after a considerable interim, when, for a triennium, it held great prominence. But the break proved definitive, for the order which Antoninus had established on the coins of his Caesar-days was soon to disappear through a complete revolution in monetary types.

And now, at some session of the Senate, during this year 139,—it is impossible to know just when, though the tale of the coins may be interpreted as indicating that the year was well advanced, a final addition was made to Antoninus's rather modest list of permanent titles. We know, on the authority of the Emperor's biographers, that the eulogium of Pater Patriae had been withheld from him and was not conferred until his second year in the Imperium. Surely this is the corroboration of all authentic coins, for there were the silver coins already described, with the reverse inscription ending in COS. II, thus indicating that the new year had been begun, while this same type of coin has been found, in all respects similar, but with the initials P. P. added, and now reading on the reverse:[10]

AVG. PIVS. P. M. TR. P. COS. II. P. P.

The mere combination of COS. II. P. P. is of course indefinite,—it can mean anywhere in the year,—early or late; but the fact that exactly the same type of coin had been issued earlier without P. P., can only mean that the title was not conferred until after the Emperor had already begun his Second Consulship. Therefore a late date, rather than an early one, is imperative.

The suggestion however may not be untenable, that those earlier silver coins reading only COS. II. had been authorized by Antoninus late in 138, in anticipation of the new year, so that the issue could be placed in circulation by the first of January. It would be no presumption so to do, for, of course, there could be no question that, unless some unavoidable accident prevented, the Consul Designatus of 138 would enter office as Consul immediately upon the advent of January 1st. In that case, the decree of the Senate awarding the new title could even have been as early as New Year's Day itself. The bronzes conveying the New Year's greeting also, supposing these latter to mean January first, could, for like reasons, have been issued early for circulation. If however these latter were in commemoration of the Emperor's birthday in October, still omitting P. P., the date for the decree of P. P. must be placed correspondingly later in the year.

These coins with P. P. appended were the last in which Antoninus ventured to place the honorary names of Augustus and Pius upon the reverse. All his succeeding issues, without exception, placed them upon the obverse, in which the overwhelming practice of both previous and subsequent times concurred. There were occasional issues, however, on which P. P. without the company of AVG. appeared upon the reverse, though usually leading the formula and not, as here, in the nature of an appendix.

In one other respect these last-mentioned coins were important.

[10] Eckhel, p. 11.

They were the last, of either Imperial or Senatorial mintage, bearing the crown-name upon the obverse in what had been so distinctive a type. Certainly it had been Antonine's own. But a new style of legend was now to be ushered in. In fact, a note of change, suggesting a breaking away from the old style, had been previously sounded in the 'large bronze,' already described, in which the order IMP. T. AEL. CAES. had been changed into IMP. CAES. T. AEL. The Roman world was now to swing through an undisturbed era of full 12 years before witnessing again the long formula upon the coins of the reign. The first period in the chronicles of Antonine's money was now closed.

The contrast between these first types and those that were now to be inaugurated will be caught by reference to the subjoined table, in which the former are shown in a group and numbered in the order of chronology:[11]

Type 1.	IMP.T.AEL(IVS).CAES(AR).ANTONINVS.
Type 2.	IMP.T.AEL.CAES.ANTONINVS.AVG.
Type 3.	IMP. CAES.AEL(IVS).ANTONINVS.AVG.
Type 4.	IMP.T.AEL.CAES.HADR(I).ANTONINVS.
Type 5.	IMP.T.AEL.CAES.HADR(I).ANTONINVS.AVG.PIVS.
Type 6.	IMP.CAES.T.AEL.HADR.ANTONINVS.AVG.PIVS.

A review of these types before we dismiss them reveals that they fall into two groups, an earlier one and a later one, by the interpolation of the adoptive name HADR.; that types 1 and 2 are correlated with types 4 and 5 in having the initial combination IMP.T.; while types 3 and 6 are somewhat related in that they begin with IMP.CAES., though, of course, type 6 was the richer by three additional names.

In summary, it will have been noticed that all the legends of the obverse thus far employed by the Imperator were of the long and complete type, as far as the accretion of purely name-titles warranted. Much shorter formulae were now to prevail throughout the latter years of the reign, the longer legend (type 6) recurring, with the addition of P.P., only at one short interval. But for this much later divergence, there would be a temptation to feel that Antoninus may have confessed, during the first year of his régime, a wish to impress his legitimacy as Princeps, by employing his full list of titles,—especially that longer formula in which his adoptive father's name was placed in conjunction with his own. But it must also be conceded that his tastes naturally might change, the longer he ruled; we may surmise that the pomp of many names finally palled upon him and that he became content with the simpler and certainly more majestic formula we shall find gracing his maturer coinages.

Now possessed of the full complement of fixed titles, with only one more, and that an occasional, honor yet to come, a change is now marked in Antonine's monetary legends. It may have been scarcely more than a year since he had been summoned to association with Hadrian in the

[11] The additional variants which Akerman, p. 254, lists in his general summary of obverse styles, will be treated at the close of these papers.

Principate, perhaps it was less than a year since he had become sole Imperator, when there appeared upon the coins of the realm, in this year 139 A.D., the dignified legend:[12]

ANTONINVS.AVG.PIVS.P.P.

Even on the smaller coins of the rarer metals, the Emperors who had preceded seem not to have elected shorter formulae. Such legends as NERO. CAESAR, or GALBA.IMPERATOR, or DOMITIANVS.AVGVSTVS have a fascination for us, by reason of their very rarity. The more cumbrous, unwieldy titles prevailed. What a relief it would be to discover one TRAIANVS. AVGVSTVS. !

It was not exactly a novelty,—this modest legend of only four factors, for the much shorter HADRIANVS.AVGVSTVS had been decidedly popular during the last generation.[13] But it was indeed a marvel that so short a title should remain unchallenged for so long a period, for, with some some variant forms which will be considered later, it held almost undisputed control on Antoninus's money to the end of his reign. There was only a short interim of three years, from 150 to 152, when alternate forms in the older and longer title were again also admitted.

The new style meant the renunciation of all portions of his personal name but the *cognomen.* The last was now become the first, the name which Antoninus, in contrast to all the Imperators who had preceded him, never suffered even to be abbreviated, much less to be supplanted by any other. The new style also meant the abnegation of the semi-titles Imperator and Caesar, which had been used so long and so constantly as now to be synonyms of sovereignty itself. Antoninus evidently felt convinced that Augustus and Pater Patriae were sufficient in themselves to convey the full intent of the Principate. The Empire was by this time so thoroughly established in practice and experience that all other inheritances of the throne could be taken for granted, and it was mere formality that dictated their rehearsal. Not that the latter were eliminated. The natural corollary to the formula with four names upon the obverse was the old style reverse stating the official honors. Such a division upon the two faces of the coin naturally preserved an evenly distributed balance.

But the constancy of this 4-named formula upon the obverse for 22 years would have produced an almost desert-like monotony in the midst of a series otherwise remarkable for its ever-shifting variety. A tedious uniformity was avoided now, as everywhere throughout the list of reigns, by the introduction of variant forms. One of these has already been noted, the curtailment of P. P., the latter either suffering elimination altogether or leading the formula of the reverse. A more effective mode of variation was accomplished by removing the Tribunician and Consular honors from the reverse and annexing them to the obverse, either singly or in pairs, with or without numerals. A third possibility was effected by the introduction of

[12] Eckhel, p. 3, A. Reference may be had to coin no. 2, illustrated in this series, which has an obverse legend of this type, though its reverse places it of later date.

[13] Akerman, p. 254, lists IMP. CAES. ANTONINVS. and IMP. ANTONINVS. AVGVSTVS.

IMP., not as a *prænomen*, but, in the old Republican style, as an acclamatory honor.

Including the original short norm of 4 names, with its more abbreviated form of 3 names, 11 additional varieties of legend were thus obtained for the obverse, which may be best understood and their relationship appreciated, if arranged tabularly in the order of their first occurrence and numbered, for convenience in future reference:

Type 7. ANTONINVS.AVG.PIVS.P.P.
Type 8. ANTONINVS.AVG.PIVS.P.P.TR.P.COS.II.(III.,IIII.).
Type 9. ANTONINVS.AVG.PIVS.P.P.TR.P.II.(XI.-XIX.,XXI.-XXIIII.).
Type 10. ANTONINVS.AVG(VSTVS)PIVS.
Type 11. ANTONINVS.AVG.PIVS.P.P.TR.P.COS.III.IMP.II.
Type 12. ANTONINVS.AVG.PIVS.P.P.COS.III.
Type 13. ANTONINVS.AVG.PIVS.COS.III.P.P.
Type 14. ANTONINVS.AVG.PIVS.P.P.TR.P.
Type 15. ANTONINVS.AVG.PIVS.P.P.TR.P.XII.(XIII.).COS.IIII.
Type 16. IMP.CAES.T.AEL.HADR.ANTONINVS.AVG.PIVS.P.P.
Type 17. ANTONINVS.AVG.PIVS.P.P.IMP.II.

Without reference to the chronological element, the evolution of these several types from a common unit is interesting. Type 16 is, of course, an interloper in the new monetary regime. It will be quickly recognized as formed by the addition of P. P. to type 6 of the earlier period. Type 10, though the simplest of them all, having but 3 names in its composition, can not strictly be taken as the substratum, for it was not the first in the field and the period of its use was quite brief. But the addition to it of P.P., making type 7, supplied the real basis for all the rest, though reference to the list will show, that in one formula, type 13,—this, too, a very short-lived title, Pater Patriae suffered displacement and was separated from PIVS by the interposition of COS.III.

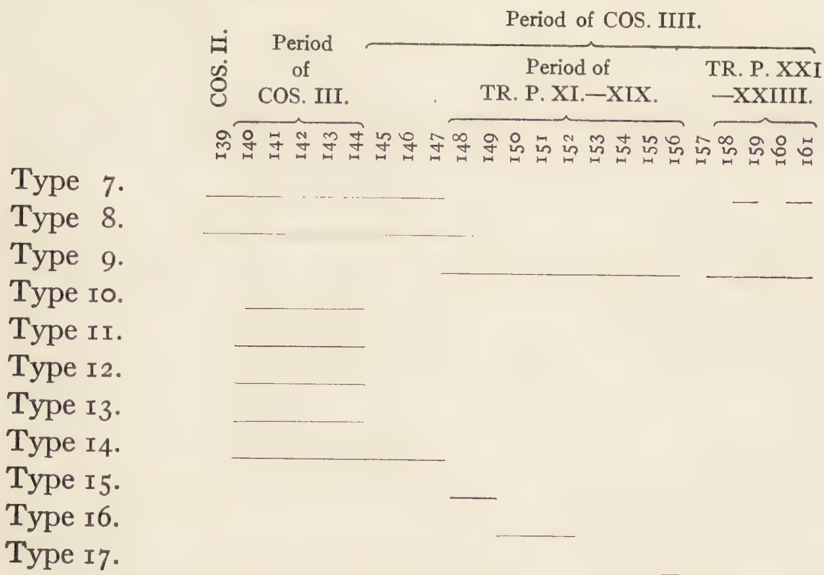
The remaining types fall into two general groups of 3 primary types each,—the first embracing those that were formed severally by the addition of one of the 3 honors, TR.P., COS., or IMP.; the second, those that admitted these same increments in combination. To the first group belong types 14,—formed by the addition of TR.P.; 12,—by the addition of COS.III.; and 17,—by that of IMP.II. In type 14, it will be noted that the TR.P. was unnumbered,—a variant was therein made possible by the farther addition of the numeral, the genesis of type 9. Type 12, also, had an alternate, in that type 13, as already noted, made P.P.COS.III. exchange places in the formula.

The 3 forming the second group, the group of combinations, were types 8, in which the numbered Consulship followed the unnumbered Tribuneship, *i.e.*, being appended to type 14; 15, which differed from type 8 only in having the Tribuneship numbered; and 11, in which IMP.II. was attached to 8. Type 11, the longest of all, if resolved into its factors, is found to be evolved by successive additions from type 10, through types 7, 14, and 8.

Rearranging the list in order to show the organic composition of the eleven new formulæ, we have the following:

Type 10. ANTONINVS.AVG(VSTVS).PIVS.
Type 7. ANTONINVS.AVG.PIVS.P.P.
Type 14. ANTONINVS.AVG.PIVS.P.P.TR.P.(unnumbered).
Type 9. ANTONINVS.AVG.PIVS.P.P.TR.P.(numbered).
Type 12. ANTONINVS.AVG.PIVS.P.P.COS.(numbered).
Type 13. ANTONINVS.AVG.PIVS.COS.(numbered),P.P.
Type 17. ANTONINVS.AVG.PIVS.P.P.IMP.(numbered).
Type 8. ANTONINVS.AVG.PIVS.P.P.TR.P.(unnumbered). COS.(numbered).
Type 15. ANTONINVS.AVG.PIVS.P.P.TR.P.(numbered).COS. (numbered).
Type 11. ANTONINVS.AVG.PIVS.P.P.TR.P.(unnumbered). COS. (numbered). IMP.(numbered).

Some of these legends prevailed for long periods, others seem to have been ephemeral and to have passed quickly into disuse. Some were instituted upon the abolishment of a former type while still others were employed side by side or overlapped in their periods. The appended table will be serviceable in illustrating their comparative lives, always, however, with this caution, that only such coins as can be dated are capable of tabulation and that, coevally with these, there may have been repeated issues that possessed no accuracy in dating.



Type 7, the simple norm of 4 names, the first of the new types in the order of time, must now first have our attention. Its popularity with the Emperor and the Senate was quite marked from its first appearance and was sustained for almost a decade, though it was accompanied always by at

least two, and sometimes as many as 6, parallel variants. In this year of 139, the first year of its appearance, the year of Antonine's Second Consulship, there was virtually but one formidable rival in the field to dispute numismatic honors,—type 8, which persisted in the contest for fully as long a period, and perhaps longer. Type 9, though of great importance later, was, during this one year, exemplified in but one issue, so far as known, thus leaving 7 and 8 to share the mintages. But the Third Consulship which was to fall in the next year, 140, and to cover 5 years in the application of its title, developed 5 additional variants, and these were succeeded in turn by type 14, making at one period 7 different formulas in vogue and latterly 3. After the year 147, when it had prevailed for nearly 10 years, type 7 presents no datable mintages and may have ceased altogether, though there were coins of the years 159 and 161, far toward the end of the reign, which brought back the old familiar formula.

It is with the coins of type 7 of this same year of 139 that we shall now be concerned. Such were issued in all metals and styles, retaining for the Imperial portrait the old alternative of the laurel wreath or the bared head. The reverses at once engage our interest, for greater variety began now to be expressed and the history of the reign is often to be read therein.

One of the first acts of Antoninus after his ascension as sole Imperator was the traditional largess to the people, termed *congiarium*. The name signified, according to the original practice, a measure of oil as the unit of distribution, although the gift nowadays was usually a sum of money to each person. The Senate, if not the Emperor himself, had evolved the custom of commemorating such largesses on the national currency. Thus now, Antoninus's initial gift to the people, which, by the way, was an extraordinary one, as it included not only the usual remembrance from the Emperor himself, but the payment also of Hadrian's unfulfilled pledges, was memorialized on the reverse of two 'first brasses.' The device was one of an oft-recurring type,—a picture-story of the distribution. The inscription of one of these bronzes read:[14]

LIBERALITAS.P.M.TR.P.COS.II.,

i.e., 'Liberality,' prefixed to the very ordinary titular formula of the reverse. The term LIBERALITAS was a euphemism which, since its introduction by Hadrian, was fast supplanting the former CONGIARIVM. With the reign of Antoninus's successor, the old term entirely disappeared.

This particular 'first brass' was, for some time perhaps, the last instance of the appearance of the sacerdotal title upon Antoninus's money. The issues next to be described until the beginning of 140 omit the P.M.

The second of the 'first brasses' commemorating this public gift of the Emperor, read on its reverse:[15]

LIBERALITAS.TR.POT.II.

This is a decidedly unique inscription, for it was quite evidently not Antoninus's general practice to enumerate his Tribuneships until his Eleventh

[14] Eckhel, p. 11.
[15] Akerman, p. 268, no. 26.

Year. It was for this reason that Eckhel evinced great hesitation in accepting the description of a bronze medallion whose obverse had read:[16]

ANTONINVS.AVG.PIVS.P.P.TR.P.II.

The formula of this last coin, by reference to the table, will be recognized as type 8, though a lone and rather doubtful instance of it, antedating its popular employment by 8 or more years. The discussion of the type itself must be deferred until the period of its firm establishment is reached in its chronological order. It only remains to remark, that the LIBERALITAS coin, with its TR. POT. II., coupled with this unique instance of type 8, in which again we note the same Second Year of the Tribunicia Potestas, and sustained also by other occasional coins yet to be mentioned, brings rather convincing evidence that the Imperator did sometimes deviate from his rule and number his Tribuneships sporadically, though he certainly did not number them consecutively until his TR.P.XI.

The temporary cancellation of the P.M. from the reverse left the formula the same as in the earliest Caesar coins, i.e., with but the Tribunician and Consular titles and now reading in all metals:[17]

TR.P.COS.II.

Instances of such reverses were a rare 'third brass,'[18] on which was a composite device, consisting of 'a table; above, a palm, and an urn; below, a *diota*' or jar,—and another piece[18] of the same denomination, depicting 'a *caduceus* and a club placed crosswise.'

This same formula occurred also in combination, just as TR.POT.COS. had followed PIETAS when the Emperor was still Caesar or as LIBERALITAS has just been described in company with TR. POT. II. An instance of this is found in a silver coin bearing as its device a female standing and this inscription:[19]

PROV(identiae).DEOR(vm). TR(ibvnicia).P(otestate).CO(n)S(vl).II. 'To the Providence of the Gods' was a dedicatory formula that had a widely extended popularity during the entire Imperial epoch. There were both gold and silver mintages of Antoninus, imitated in 'large brass' by the Senate, in which the full and unabridged phrase was also used as sole legend, accompanying the device of a thunderbolt.[20]

But by far the most interesting coins of this year were a series of so-called 'geographical' issues. Coins in honor of the various Provinces of the Empire had recently become a frequent type of money. Hadrian had popularized the practice by his system of visits throughout the Empire. He had repeatedly been hailed on coins as RESTITVTOR of this or that Province; or his arrival in an opposite region would be chronicled by ADVENTVS in another issue.

[16] Eckhel, p. 4, F, and p. 12.
[17] Eckhel, p. 12.
[18] Akerman, p. 272, nos. 5 and 6.
[19] Akerman, p. 258, no. 43.
[20] Akerman, p. 258, no. 44. Stevenson illustrates a 'large bronze' on p. 399, while two others are shown in Duruy's *Hist. of Rome*, vol. I, p. 127.

These 'geographical' bronzes[21] of Antoninus sprang from an altogether different source, for Pius was not a traveller. They were a picturesque but eloquent acknowledgment of one of the Emperor's characteristic acts of beneficence. Upon the adoption, or, it might be, upon the ascension, of the new Imperator, the Provinces, following a long established and inexorable custom, had proceeded to tender their congratulations. It was really a tribute in disguise, for it was expected that these felicitations would be accompanied by a substantial sum of money, in lieu of the original gift of a gold crown,—the *aurum coronarium*, as it was now called. Many an unprincipled Emperor had taken mean advantage of this courtesy to renew a dissipated fortune, but Antoninus, with his wonted generosity, is distinctly said to have restored the whole of the gift to the Italian communities and one-half of it to the Provinces. The Senate now perpetuated the Emperor's liberality in a series of coins, some in the 'first brass' only, others having also duplicates among the 'middle bronzes.'

The majority of these have COS.II. accompanying the name of the Province. SCYTHIA, SICILIA, and SYRIA, without this defining date and also having no help from the obverse, for all that have legible obverses are of the short, four-named, undated type,—are still referable to this same group by reason of their general similarity. The attitude, the intent, the style are alike in all. Each Province concerned had a separate mintage in its honor,—AFRICA having several, and SYRIA having two, both with and without COS.II. Thirteen Provinces were represented,—these including the city of ALEXANDRIA. In each, the Province appears in personification, inscribed with its own name and in the act of presenting its crown or gift-box. Some localizing emblem usually accompanies the figure,—for instance, the sacred Mount Argaeus is represented at the feet of CAPPADOCIA; an ibis is held in the left hand of ALEXANDRIA; a palm stands behind the figure of PHOENICE. Where COS.II. are present, these usually are written in large letters around the edge of the coin, while the name of the Province is on the exergue below the figure of the Genius, but the very reverse of this apportionment of inscription was also admitted. Without the Consular title, the geographical designation instead would be inscribed around the edge.

The alphabetized index which is herewith appended, will serve to show at a glance the distribution of these 'geographical' issues, among the two sizes of bronze, the presence or absence of COS.II., and additional numismatic authority for individual coins.

Province					
AFRICA	COS.II.	1st brass	Aker., p. 266, 2	2d brass	Aker., 270, 1
AFRICA		1st brass	Stev., cut, p. 26		
AFRICA		1st brass			
ALEXANDRIA,	COS.II.	1st brass	Aker., p. 266, 3	2d brass	
ASIA	COS.II.	1st brass	Aker., p. 266, 5 Stev. cut, p. 90		
CAPPADOCIA . .	COS.II.	1st brass	Aker., p. 266, 9		
DACIA	COS.II.	1st brass	Aker., p. 267, 17		

[21] Eckhel, pp. 4–11.

HISPANIA.....COS.II.		1st brass	Aker., p. 267, 20 Stev. cut, p. 463
MAURETANIA, COS.II.		1st brass	Duruy's *Hist. of Rome*, Vol. v, p 443
PARTHIA......	COS.II.	1st brass	Aker., p. 268, 28.
PHOENICE.....	COS.II.	1st brass	
SCYTHIA.......		1st brass	Aker., p. 269, 38 2d brass, Aker, p. 271, 17
SICILIA........		1st brass	Aker., p. 269, 41 2d brass with COS.II. Aker. p. 271, 18
SYRIA..........		1st brass	Aker., p. 269, 42
SYRIA..........	COS.II.	1st brass	

One is rather surprised to find, among these Roman Provinces, SCYTHIA and PARTHIA, countries that were manifestly independent of Roman authority. Sufficient explanation has been found in the suggestion, that these foreign countries too had sent embassies to Rome with overtures of congratulation, praying for exchange of friendship and courtesy, as is the custom among nations to-day. And yet there may have been a particular reason in both cases. It is the record of history, that Antoninus despatched military aid to one of the cities of Scythia, perhaps in response to this same presentation of the *aurum coronarium*. Parthia's was, as always, an aggravated case. Trajan had mulcted her of the ancestral throne; Hadrian had promised to restore the historic heirloom, but died without fulfilling his pledge. The embassy may well have had the express purpose of winning the favorable attitude of Antoninus. We are told, however, that the latter was obdurate, though hostilities were happily avoided.

Special importance is thought to be attached to the issue in honor of ASIA, for there is a passage in Capitolinus, to the effect that there had been a destructive earthquake in that Province and that Antoninus had restored the stricken cities.

The spelling PHOENICE has surely caught the eye of even the most casual reader. We are so accustomed to the form which the word has modernly assumed, that such a departure as we have here is at once an object of curiosity. It is of interest, therefore, to realize that the original and correct orthography of this Province's name is to be read from this *sestertius* of 139 A.D. It was Phoenice and stayed Phoenice until the writers of the Late Empire gave it the derived name Phoenicia that has prevailed with us.

The list of 'geographical' coins has been erroneously extended by some numismatists to include several issues in honor of BRITANNIA and ITALIA. 'Geographical' these latter certainly are, but not one of them quite conforms to the date and type and style of the issues of 139.

The COS.II. accompanying the majority of these 'Provinces,' presents a unique contrast against the longer official titles that so usually characterize the reverse. The omission of the ubiquitous Tribunicia Potestas and High Priesthood from the list of honors, throws a certain dignity upon the one remaining title,—a dignity which it was well able to sustain, if we could

only be sure that it was rehabilitated with its old-time prerogatives. Certain features, to be noted as they occur, seem to suggest that, at the outset of his reign, Antoninus was more friendly toward the Consulate than he was to the Tribunician Power. Certainly it will have been noted that there had been, as yet, but one mintage, the LIBERALITAS coin, in which the TR.P. had been similarly used alone. These 'geographical' coins, on the other hand were multiplied manifold, sowing the austerity of COS.II. broadcast.

One other mintage shared with the 'Provinces' in having COS.II. alone in the exergue,—a 'second brass,' bearing the inscription:[22]

BONO.EVENTVI.

The 'elf of success' had not graced Roman coins since the reign of Titus. His present recall by the Senate, probably at the Emperor's suggestion, seems to be added testimony to the general prosperity of the times, though we are left to wonder what knotty problem it was, over the outcome of which the Imperator felt constrained to publish his gratitude. The graceful figure of 'Bonus Eventus' holds the center of the coin,—'the naked figure of a man, standing beside an altar, and holding in his right hand a *patera;* in his left, ears of corn.'

The coins of 139 so far mentioned have all been of the simple norm of 4 names, all of type 7, with one exception,—the lone example of type 9, 9 years ahead of its established period. But reference again to the table will show that one very prominent type of variation, type 8, was inaugurated during the same year of 139, probably parallel with the introduction of type 7, and destined to be used subsequently with great frequency side by side with the latter. Type 8 was a sort of counterpoise to type 7,—the obverse of the former was entirely unencumbered by official titles, whereas the latter made room on the obverse for the Tribunician and Consular titles. The obverse for this year thus read:[23]

ANTONINVS.AVG.PIVS.P.P.TR.P.COS.II.

It may be an amateurish whim, but a rather pleasing contrast is suggested to the writer by the absence of the numeral from the Tribunician honor and its presence with that of the Consulship. The difference becomes quite apparent, if coins of this type be placed side by side with the subsequent issues of type 15, in which both the honors were attended by numerals. Others, however, may experience quite an opposite impression,—that of satisfaction in the balance given to both honors by the accompanying numerals.

There was a farther contrast offered to coins of type 7 by those of type 8, at least during the year 139, in that the latter presented only laureated portraits of the Emperor, a restriction which was observed in all metals. But its incipient year was not marked by any preëminence in design or historic importance in the coins of type 8, the popularity, for a time, resting wholly with type 7.

FREDERIC STANLEY DUNN.
University of Oregon.

[22] Stevenson illustrates on p. 131, as also Duruy's *History of Rome,* Vol. 1, p. 124.
[23] Eckhel, p. 4, c.

FIG. I. RECENTLY DISCOVERED RUIN OF PESEDE-UINGE

EXPLORATIONS IN CHAMA BASIN, NEW MEXICO

On the fifth day of October 1910 I started in company with Mr. John Hart, of Colorado Springs and Aniceto Sousea, a Pueblo Indian from Santa Clara, New Mexico, to explore a portion of the Chama Basin that is almost unknown. Branching off the main road about 4 miles above the confluence of the Rio Chama and the Rio Grande, we turned almost due west into the mountains. Following this road, we reached the chain of detached fragments of the Black Mesa (Mesa Canoa) which crosses to the south side of the river at about this point, and from there passed into the valley of the Rio Oso. In skirting the base of the line of bluffs forming the south side of the Rio Oso, we found some potsherds, and by following these at last came to the foot of a mesa on the top of which was a large pueblo ruin. This is the ruin of Kuuinge (Tewa, meaning the place of stone, from Ku- meaning stone, and uinge- meaning the place or village). The first place explored however, was the plain below this ruin, and I have called it Number One.

NUMBER ONE

An area of about one-half mile by three-quarters of a mile directly north of and beginning at the foot of the mesa on which is located Kuuinge is covered with potsherds, broken stone implements, etc. There are no mounds or elevations on this plain, but in the sides of washes and arroyos are indi-

cations of what were possibly adobe walls; the traces of these are very plain, and appear the same as a modern adobe wall washed down today.

The whole area is covered with a heavy blanket of sand. I found the remains of a very fine corrugated pot imbedded in the side of an arroyo about 3 ft. below the present surface. This had been broken before its burial, as the pieces were carefully laid one inside of the other. The interior of the pot was covered with soot. The ware was the ordinary black corrugated with a wash of mica, some of the pieces were missing. I left most of it in place, only taking enough for a sample.

The pottery scattered over the plain was mostly of the conventional black and white with an occasional small piece of red or glazed ware, although these were rather rare. All of the pottery is about the same as that found at Puye, though a trifle heavier, and in some instances less carefully made. The markings are practically the same as those found all over the northern portions of the Jemez Plateau.

In one place only I found what might have been the base or foundation of a tower. This was oblong, about 6 by 8 ft. and there is doubt in my mind as to whether it was anything more than a natural wash of the rocks.

NUMBER ONE—B

I have called this site Number One–B, as it seems to be an extension or part of Number One. In a deep arroyo about a quarter of a mile from the main part of Number One, was evidently a settlement and burial place, as there are many broken bones on the surface and along the bottom of the arroyo. This is about 300 yards from the bed of the Rio Oso, when travelling southwest.

In the side walls of the arroyo (both sides) are ashes, burned corn, broken pottery, and bones, human and animal, in great profusion. In one place I found the hoofs of a deer, a white ceremonial stone and a small stone shaped very much like a keystone, the edges of which had been smoothed and worked; this was probably a charm of some kind. There were no whole pots to be seen anywhere.

Directly southeast of this site is a shrine on the top of a low butte which is composed of the usual circle of stones, about 18 ft. in diameter and now almost filled up with small broken stone. There were many large, white stones, and an article that I first thought was an image of some animal. This proved upon examination to be a piece of unbaked clay, such as is used for making pottery. The pottery of Number One–B is the same as Number One, excepting that it is of a much finer quality and the decorations are more elaborate, more like the finer ware of Puye. In the corrugated ware, the coiling is more marked and in some cases extra indentations with finger nail or sharp instrument were made. One small piece of glazed ware was found. The grayish, yellow incised ware is also found in small quantities here.

There is only a very small break between the areas covered by Number One and Number One–B.

Stone implements consisted of broken metates, grinding stones of different kinds, broken hammers, etc., the usual broken things found in ruins of this character. All were in such shape as to not be worth carrying away.

NUMBER TWO—KUUINGE

Kuuinge is located between 350 and 400 ft. above the level of the river bed, and is about two miles south of the Rio Chama, and three-quarters of a mile east of the Rio Oso.

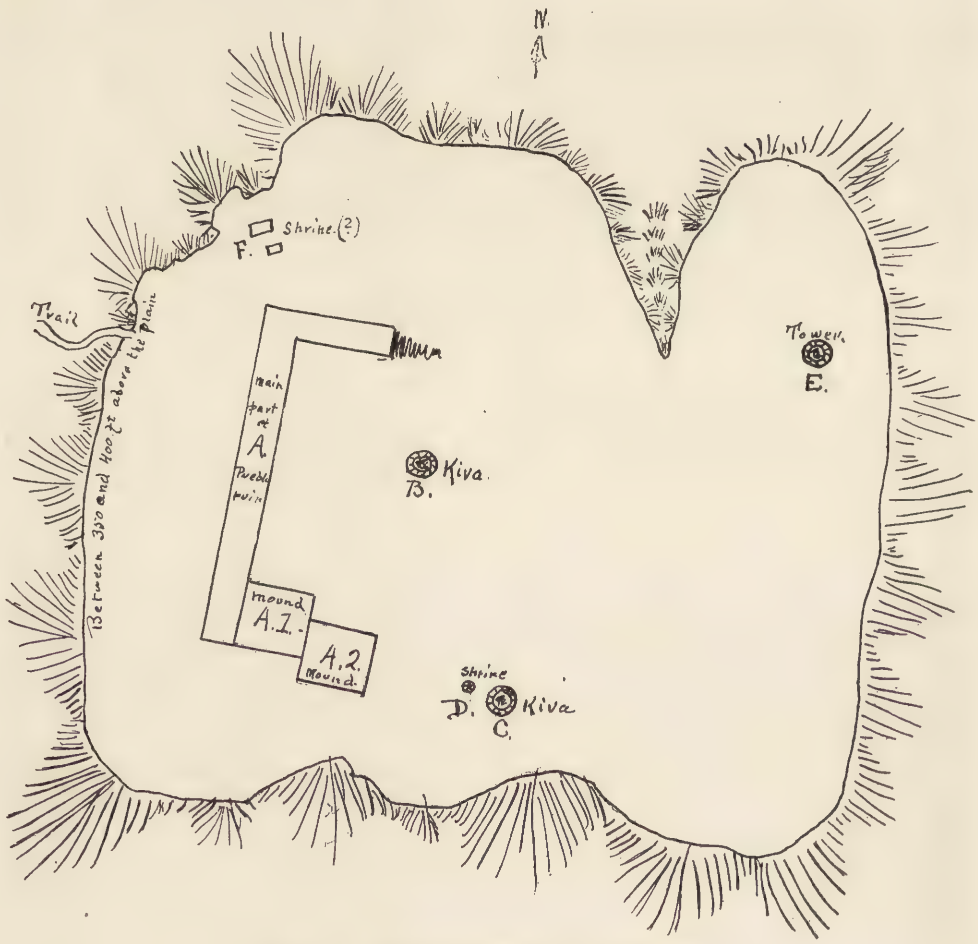
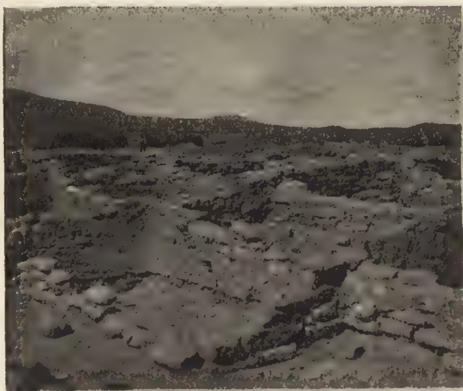


FIG. 2. SKETCH MAP OF KUUINGE

This ruin is in very bad shape, very little being left of the walls in the shape of mounds, in fact we could only approximately determine the outlines. As shown in the map (Fig. 2) the main ruin ran about north and south, being one long building, with wings at the north (almost obliterated) and at the south. Letter A as nearly as we could measure, is about 500 ft. long, the north wing, being so poorly defined, we did not attempt to measure. A1 is the upper mound, joined at the southeast corner of A, and is about 15 ft. above the main level of the mesa. Here the walls can



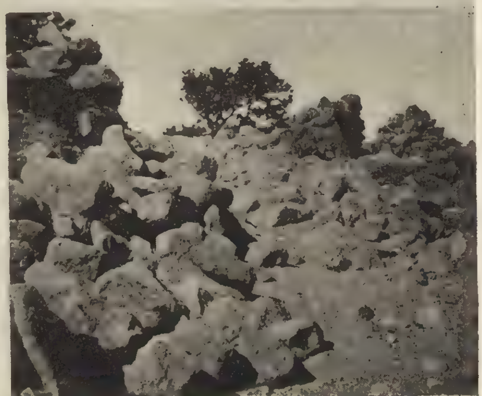



FIG. 3. EXCAVATED PUEBLO AT PUYE
FIG. 5. RESTORED KIVA AT PUYE
FIG. 7. TZIIPINGUINGE

FIG. 4. TZIIPINGUINGE
FIG. 6. TRAIL TO PUEBLO OF TZIIPINGUINGE
FIG. 8. CLIFF-HOUSE AT PUYE

be very faintly traced in places, but not enough to give any idea of the building. A2 is the lower mound joined to A1 and is about 5 ft. lower than the latter. The whole surface of both of these mounds is covered with potsherds, broken stone implements and flakes of obsidian, quartz and flint.

B is a kiva, the base of which is built of white quartz, and in fact the only stone in the immediate vicinity of this building is white quartz. This room was semi-subterranean, circular and about 30 ft. in diameter.

C, another kiva, southeast of the main ruin, built of basalt, walls are about $1\frac{1}{2}$ ft. high. This kiva, lying southwest of the ruin, has the ceremonial entrance very plainly marked.

D, remains of a shrine, about 3 ft. in diameter, due north of kiva C, and composed of 20 stones all of average size. There was nothing inside of this shrine.

E, the remains of what was undoubtedly a very imposing tower, overlooking the country east and south. This is about 34 ft. in diameter and is built of both basalt and tufa brick nicely dressed. The walls are still about two feet in height.

F, two stones having artificial cups on the outside. The larger of these two stones is 5 ft. by 2 ft. 9 in. and 4 ft. in height, the other 4 ft. by 2 ft. and 2 ft. in height. My Indian said that this was a shrine where the Indians went every morning to pray for strength, the cups being made by the worshippers pounding on the rock to attract attention of the gods.

The main part of the pueblo was built of tufa.

NUMBER THREE—PESEDE-UINGE

Pesede-uinge (Tewa, the place of the sliding log) is a ruin located 5 miles west of the Rio Chama and is on the west bank of the Rio Oso, about 300 ft. above the river bed. The main part of the ruin is on the top of the mesa. This neighborhood is said to have been the first place occupied by the Labattos, immediately after receiving the grant from the Spanish crown. There are a number of ruined Spanish adobes within a short distance of the ruins. The whole of the southeastern and portions of the southern walls are gone, owing to attempts by the early settlers to cultivate the top of the mesa.

At the northern end of the pueblo is a tower, which can plainly be seen from the right bank of the river. This tower is about 20 ft. in diameter, and has been partly restored by the Spaniards. The lower part of the wall however, to the height of about 2 ft., shows unmistakable signs of the prehistoric mason. The walls now are from 4 to 6 ft. in height, and are partly plastered inside, the remains of an old Spanish fireplace are still to be seen. There are two huge beams lying across the top of the tower, probably placed there by the Spaniards, as they show the marks of metal axes instead of the rough "chewed off" appearance of the work of stone tools. This tower may have been a kiva, as there is an opening in one of the walls of its base very much like the one in the restored kiva at Puye.

About 125 ft. due east of this tower are the remains of a square tower. This was at the eastern corner of the pueblo and was a part of the main buildings. It is about 20 ft. square and now forms a mound nearly 5 feet above the level of the mesa.

About 2000 ft. south of the first tower mentioned are the remains of another tower. This is smaller, oval and about 4 by 6 ft., and may have been a shrine.

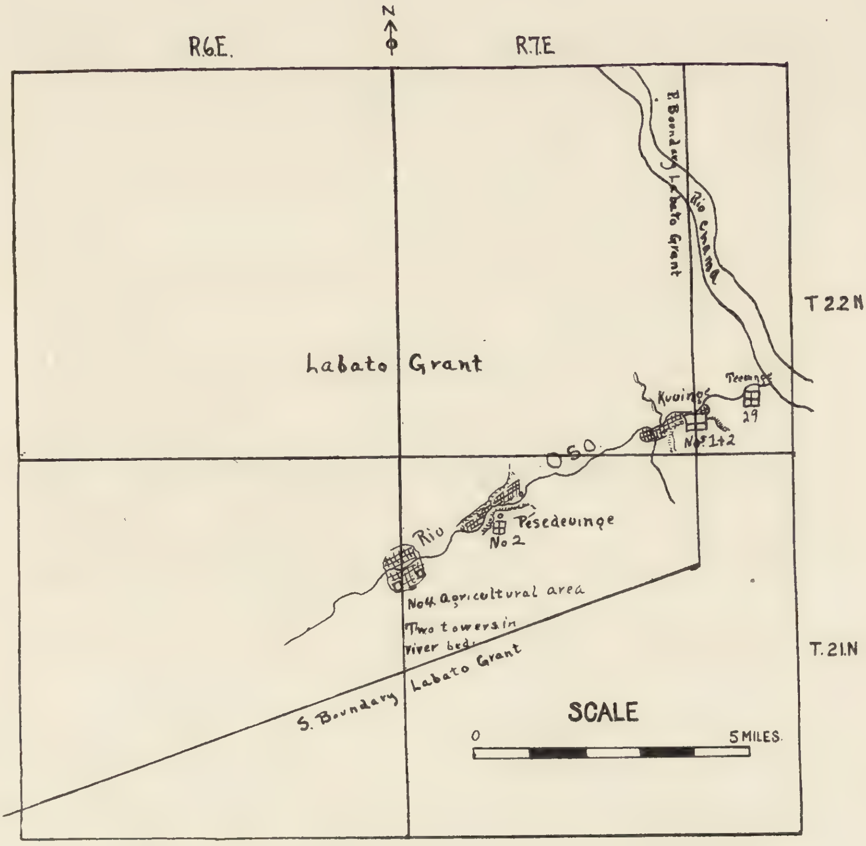


FIG. 9. MAP SHOWING LOCATION OF THE RUINS

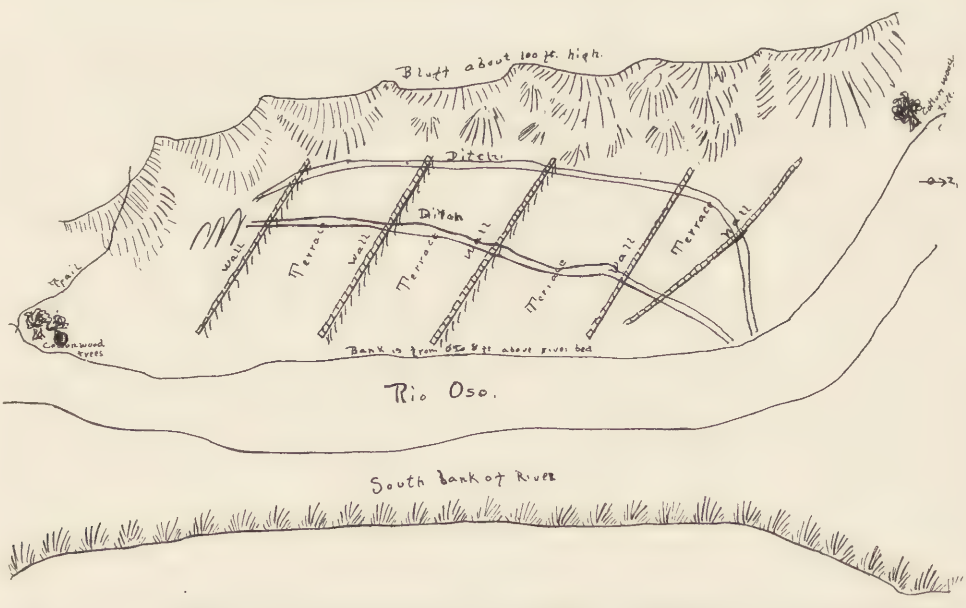


FIG. 10. FIELDS OF PESEDE-UINGE SHOWING DITCHES AND TERRACES

FIG. 11. NEAR VIEW OF PESEDE-UINGE

About 500 yards south of the pueblo are the remains of a large reservoir with ditches leading in several directions. This part of the mesa is about 20 ft. higher than the part on which the ruin stands.

Parts of the pueblo are very plain. As far as can now be ascertained, the pueblo consisted of a huge oblong structure composed of buildings surrounding 4 courts. All were joined together, the spaces forming the courts varying in size. The outer wall running north and west was not less than 2000 ft. in length, perhaps more, as at the western end the Spaniards destroyed part of the buildings, and the exact termination of the walls cannot be determined. Running from north to east is a defensive wall about 125 ft. long and terminating in tower B. This wall is only about 2 ft. high now, but was probably 5 or 6 ft. originally. Running due south from tower B for 900 ft. is a line of rooms, the end of which is again lost by reason of early Spanish workings.

The pueblo was not more than one story high in most places, but about the center are stones and debris that would indicate two stories, if not more. The walls were all built of basalt which is abundant in this section. A small excavation showed that the floor of the buildings were about 4 ft. from the present surface of the mesa, the parallel walls forming the buildings are about 20 to 25 ft. apart, whether this was sub-divided into other rooms cannot be determined without further excavations.

Potsherds are not very plentiful, being mostly of the black and white type, although some red and some incised ware was found. Only one piece of the glazed ware was found, and no black or corrugated. The black and white was very thick and inclined to be clumsy.

There are tons of broken metates and other stone implements covering the mesa top, also great quantities of quartz, flint and obsidian flakes

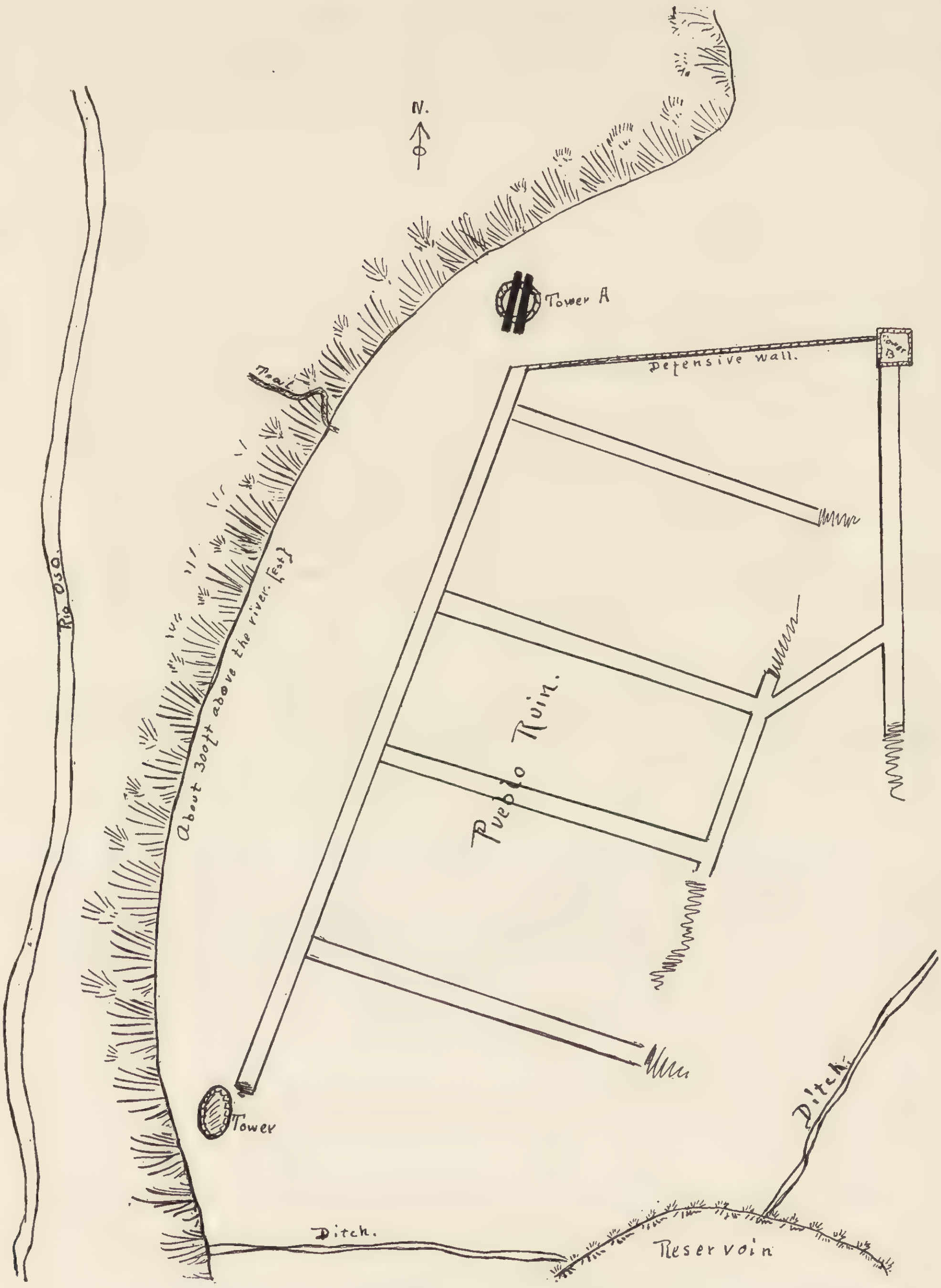


FIG. 12. SKETCH MAP OF PESEDE-UINGE

and lumps; two pieces of copper ore were found in about the center of the ruin. These are very rich, being about 75 per cent pure copper. A number of perfect arrow heads were found, white, red and obsidian, also a number of other articles. One broken axe was found on the trail leading to the river.

There are no signs or indications of kivas on the top of the mesa, unless tower A was used for that purpose. The early workings of the Spaniards may have effaced these as many of the probable locations of kivas were used as argicultural areas by them.

Nearly a quarter of a mile to the northwest on the right bank of the Rio Oso were the fields of Pesede-uinge. These were from 600 to 1000 ft. long and from 200 to 300 ft. wide. Walls were built across them forming terraces, and the ditches still remain in fairly good condition. There are indications of dwellings on this side of the river, but we were not able to determine any outlines. Pottery in small amounts is scattered all over these fields; at the western end is a trail, leading from a large cottonwood tree to the top of the mesa north of the ruin. The mesa on this side of

FIG. 13. EXCAVATED PUEBLO AT PUYE

the river is only about 100 ft. high. Almost due northeast of the cottonwood mentioned, and at the other end of the field, is a small group of cottonwoods. Water can be obtained at either of these places by digging in the river bed.

As far as we were able to determine, aside from the early Spanish workings, there has been no excavating done in Pesede-uinge.

NUMBER FOUR

This covers a large area of country; about a mile southwest of Pesede-uinge, in Rio Oso Cañon, in fact almost in the river bed itself, are located extensive fields. There are remains of two long walls about 400 ft. in length and about the same distance apart. These form terraces very

FIG. 14. TRAIL AND DEFENSIVE WALL AT TZIIPINGUINGE

much like those at Pesede-uinge and the place was undoubtedly an agricultural area, although at present we were unable to find any ditches for irrigation. This can probably be accounted for by the fact that at times when the river is high all of these places are submerged, so that sand, stones and other debris could easily have filled up any ditches that existed in former times. It would have been an easy matter to get water on all of these places, as the western end of the field is only a couple of feet above the river bed.

On the south bank, and at a short distance from the river are the remains of two towers, about 400 ft. apart. The one farthest west is 6 by 10 ft. the other 6 by 8 ft. The walls in both are now about 2 ft. high, square and could not have been originally over 5 or 6 ft. at most in height. They probably were nothing more than shelters used during the time the fields were being cultivated. There is no wall connecting them. No pottery or broken implements were found any place in site Number Four, excepting in the western tower. Here are a couple of good manos, and perhaps other things could be found by digging in the ruins. A member of a surveying party, who worked here last winter, told me that a number of fine arrow heads were found in these fields.

ADDITIONAL NOTES ON TZIIPINGUINGE

Tziipinguinge (Tewa, the place of the pointed mountain, from *tzii*, meaning point, *ping*, meaning mountain and *uinge*, the place or village). This ruin is partly described in Dr. Hewett's *Antiquities of the Jemez Plateau*, under the name of Chipiinuinge, and is on a mesa between the Cañones and Polvadero Creek, 4 miles south of the Rio Chama.

FIG. 15. TZIIPINGUINGE, GENERAL VIEW OF RUINS

Adjoining the mesa on which the ruin is located is a companion mesa almost equal in size and closely connected with it. These two are from 800 to 1000 ft. above the surrounding country, excepting on the south. The smaller one of the two, I will call Number One, and the one on which the ruin is located Number Two. Southeast of Number One is a chain of mesas, ranging from 700 to 800 ft. higher than it. On the northwest side of this chain is a trail leading down to the neck of land or causeway that connects Number One with it. This causeway is about 1000 ft. in length, and varies from 6 to 8 ft. in width. It is impossible to scale either side, while in some places remains of walls are seen which were used as added protection. At the northwest end of this causeway are the remains of a tower, not quite oblong, and about 15 by 18 ft. in diameter. The walls are about 2 ft. high. Just northwest of this about 25 to 30 ft. is a sort of cave that has fallen down; in what is left are a number of little niches giving the whole the appearance of having been a sort of shrine. It faces due east.

Climbing the trail from here and crossing the top of Number One about 300 ft. is a circle of stones which was either a shrine or tower for defense. It measured 60 ft. in diameter and had two doors, northeast and southwest. The walls are now from 3 to 6 ft. in height; in the center was a fireplace, but there is no evidence of an altar or anything of that kind. Few of the stones used in the walls are dressed, and some are so large that it would take 3 or 4 men to handle them. This place is very much like the stone enclosure at the Stone Lions of the Portrero de Las Vacas, except the stones are laid one on another instead of being set on end.

The distance from Number One to Number Two is about 300 ft. The trail leading up the left side of the draw from Number One to Number Two

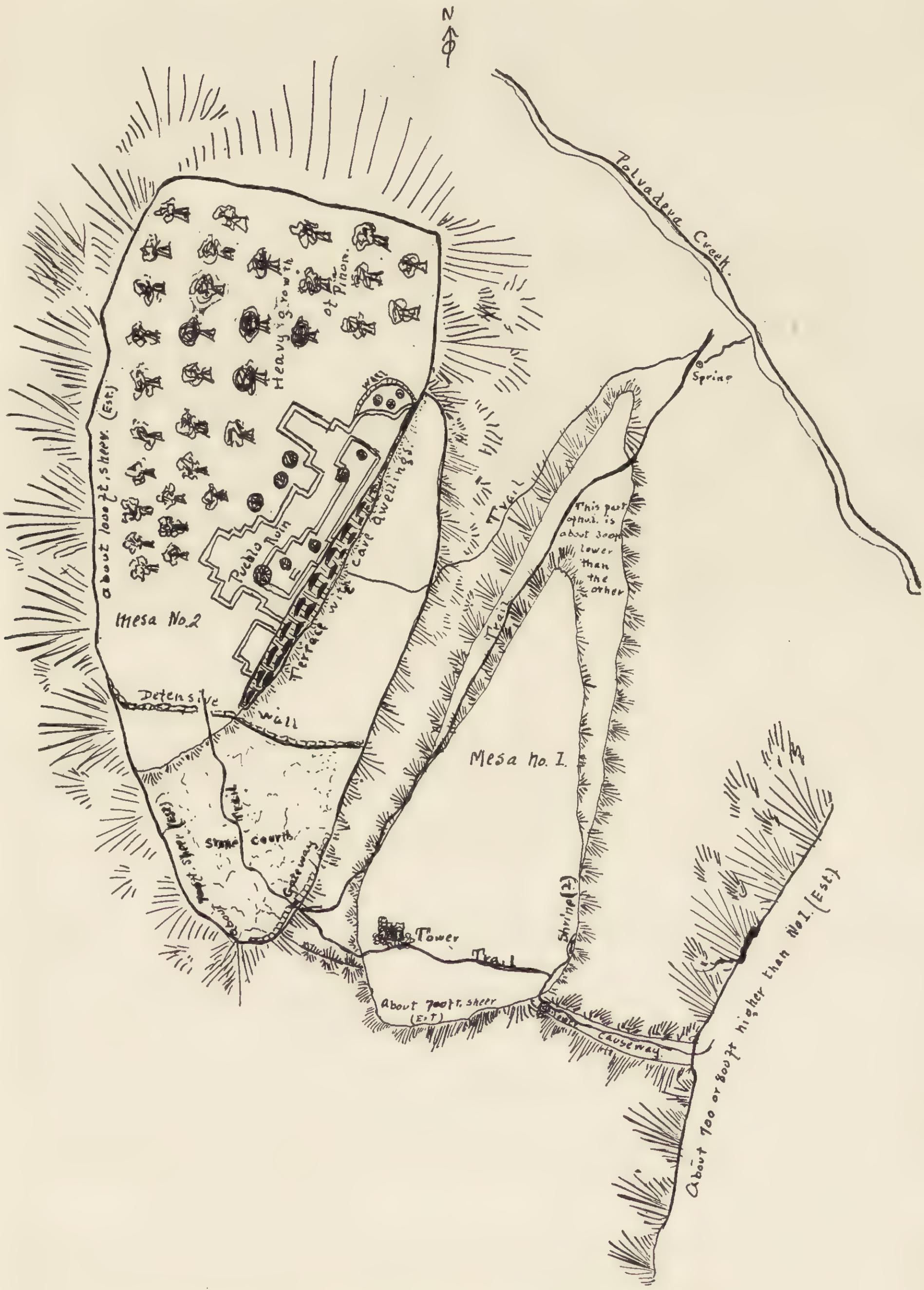


FIG. 16. SKETCH MAP OF TZIIPINGUINGE

joins the main one from the bottom of the cañon at about 100 ft. from the entrance to Number Two. There is another trail leading into the cañon on the southeastern side of the ruin, about the center of the cliff dwelling. This goes down to the spring at the foot of Number One, and was probably the means of obtaining water, as it was much more direct than the other trail, though much steeper.

FIG. 17. DEFENSIVE WALL AT ENTRANCE TO TZIIPINGUINGE

FIG. 18. GATE-WAY AT TZIIPINGUINGE

The entrance to Number Two is a most remarkable defensive place. Wherever the natural walls of the mesa were too low for good defense, artificial walls were built, in fact almost the entire southern end of the mesa is defended by walls built right at its edge.

To enter the gateway of Tziipinguinge one has to climb up about 15 ft. by hand holds, before reaching the gateway itself which is a narrow passage not more than 5 ft. in width. Alongside of this are the remains of some huge logs that were used to close this entrance. After passing through the gateway, you enter an immense court through which the trail leads. On both sides of this court are a large number of natural corrals or smaller courts. Where Nature has failed to make these impregnable, the ancient Pueblo has built walls to make up the deficiency, and only small passageways, just large enough to crawl through connect these different courts. There are at least 25 of these places on both sides of the trail. Even after obtaining a foot hold in the first large court, an enemy could be held at bay for a long time, as the trail runs through a series of these courts, then out into an open space, lined on both sides with huge rocks and walls. In fact there would be at least 1000 ft. of hard fighting before anyone could approach close to the defensive wall that protects the Pueblo itself. This is undoubtedly one of the most remarkable defensive sites in all the prehistoric world.

The defensive wall is south of the middle of the mesa and cuts off the pueblo as well as the cliff-ruins from the before-mentioned defensive works. It is now only a few feet high but originally must have been at least 5 ft. in height.

FIG. 19. CAVATE LODGES, TZIIPINGUINGE

The pueblo itself is one of the most beautiful and remarkable ruins in all the Jemez plateau. Comparatively little sand and rubbish has blown into the rooms, and in some cases one would only have to excavate a few feet to reach the floor. It is impossible however, to determine the exact number of rooms as the fallen walls of the upper stories cover so much space that without removing the debris the outlines of the ruins cannot be established.

At one place we found a section of roof intact. It was composed first, of floor beams about 6 to 8 in. in diameter, placed a few feet apart, then sticks, about 1½ to 2 in. in diameter covered with twigs, then cedar bark, and over all adobe about 2 inches thick. This seems to have been the favorite method of building roofs and floors of the old pueblo. The tufa bricks are unusually large, some being in fact as much as 4 ft. in length. This does not refer to door sills and lintels, some of which were from 4½ to 5 ft. in length, and wonderfully dressed. There has been some excavating in this ruin, and in the rooms thus treated we were able to see the doors and other openings in the walls which are the same as those at Puye. The walls were as nearly plumb as though they had been laid up by modern masons with modern tools. The corners are sharp and square, and in many cases the adobe mortar is still in place.

The round rooms are not true circles; some of the kivas are unusually large, one in fact measured about 40 ft. in diameter. Some of them had the covered passageway, thought by some authorities to have been used as a ceremonial entrance, by others to have been used as air shafts. Besides this passage in a number of cases, particularly those dug out of the solid

FIG. 20. FIRST COURT AT TZIIPINGUINGE

rock of the mesa, were two or three other openings in the rock walls, running from the surface to about three-fourths of the depth of the room. These varied from 6 in. to 1 ft. in diameter.

In Dr. Hewett's *Antiquities of the Jemez Plateau* he speaks of all of the circular rooms being kivas. This my Indian disputed, saying that the ones dug in the solid tufa top of the mesa were used as reservoirs for storing water. In one case at least I remember steps leading down into the interior of the room, like those leading into Oriental wells. I am inclined to think that some of these subterranean rooms were used for the purpose of storing water. At the north end of the pueblo is a wall enclosing three of these, and forming an enclosed court.

It is impossible to estimate the number of rooms in the side of the cliff, as the debris from the pueblo has fallen over the face of the caves, and these can only be reached by removing the fallen masses. There is enough to show however, that the cliff dwellings are of the ordinary cavate type, such as is found all over the Jemez Plateau. The cliff dwellings and the pueblo must have formed practically one and the same building, as the pueblo is built at the extreme edge of the mesa overlooking the ruins and there are evidences that the cliff houses must have reached to the bottom of the pueblo and perhaps higher, very much like the upper and lower portions of the Casa Blanca ruin in Cañon de Chelley. Granting that the cliff housess were only 2 stories high, and the pueblo 3 stories, this would give us an immense building of 5 stories, covering a number of acres.

REMARKS

The newly discovered ruins in the Rio Oso seem to be a connecting link between Puye Shufinne and the ruins at Ojo Caliente. It has long been supposed that ruins existed in this locality but as yet no effort has been made to find them.

The ruin of Kuuinge especially would be hard to find unless one were looking for and had some idea of its location. Whether the pueblo on top was occupied first, or whether an adobe village was first established on the plain below, is a matter that cannot be determined without further investigation. It is also questionable as to whether there really was an adobe village on the plain below. We did not have time to go into this matter to any great extent. The location of Kuuinge is ideal from a defensive standpoint. From the north side only one trail leads to the top of the mesa. I was not able to find, in the limited time that we were there, any other trail to the top. The one spoken of is very steep and rough. The whole northern slope of the mesa is covered with broken pottery and implements.

The bones, broken pottery and other articles at Number One–B, indicate that a large settlement once existed at this place. The close proximity to water and large agricultural areas would be enough inducement to draw a good sized population to the spot. The whole area is now covered with several feet of sand, and excavation would be very expensive excepting in the sides of arroyas and draws.

From this point to Pesede-uinge the Rio Oso now carries no water, and its bed is one vast plain of sand, with immense bluffs on either side. In places these reach the height of several hundred feet and are pure sand; some very remarkable formations occur in them showing the effect of wind erosion.

Pesede-uinge is not so well located for defense, but is much larger and roomier. It is to be regretted that the place was not explored before the Spanish occupation of the site. Undoubtedly many valuable things are now lost forever. The destroying of walls by the early settlers is also to be regretted, as one can only guess in a great many places as to the outlines of the buildings. I have gathered that at one time Pesede-uinge was a place of great prominence. The Santa Clara Indians whom I interviewed on the subject call it "El Capitan," and say that it was a sort of companion to Puye, which is only 9 miles away, but was of more importance. This information was given me by Aniceto Sousea and an old man by the name of Naranjo, not however, the Naranjo known as "Santiago Jim."

The fields north and west of Pesede-uinge are remarkable examples of prehistoric agricultural works. The curious thing about the ditches is that they seem to end at the western line of the fields at an elevation about 20 ft. higher than the eastern, and all of 25 ft. above the river bed. Whether the ditch ran on farther west or not we did not have time to determine. If it extended farther west to the river, which is more than probable as that would be the only way that water could be run into it, the builders would have to go a long way as the fall in the river is comparatively slight at this place.

The agricultural site at Number Four is only a little higher than the river bed, so that there no difficulty would be found in obtaining water.

Pottery and other things found in the new locations indicate that these people were of Pajaritan culture. I have heard some stories that the people of Nambe lived in Pesede-uinge at one time, but have not been able to corroborate them as I have not had the time. A curious thing in connection with the pottery is the abundance of red and glazed ware at Puye, and the seeming scarcity of either of these at the newly located sites. Excavations may however, prove this to be wrong. Pesede-uinge would make an ideal place to excavate, and I hope to be able next spring to make further research there, as the owners have given me permission to do so.

The admirable defensive site of Tziipinguinge makes it one of the most remarkable places in all the pueblo region. I cannot understand why the companion Mesa Number One has been passed over in reports on this place, as it is very important to Number Two from a defensive standpoint. The narrow causeway from the main range of mesas, the defensive walls and towers all indicate that the inhabitants of Tziipinguinge considered this point of attack as much as any other.

This ruin is on private land, at present owned by a lady in Philadelphia, whose name is unknown to me. Arrangements should be made with her to protect the ruins as much as possible, as I have been told that the Mexican boys who live in Cañones, go up and dig there frequently. Of course there is plenty of material left for study, but excavating by people who do not understand it and merely for commercial purposes should be stopped here as well as on government land.

All measurements in this report are only estimated; where possible I paced them off.

J. A. Jeançon.

Colorado Springs, Colo.

ROMAN BROOCH FROM BROCKLESBY, ENGLAND.—An interesting piece of jewelry found at Brocklesby was added to the Hull (England) Museum a little less than a year ago. It is a brooch of Roman date from about 120 to 150 A.D. It is remarkably well preserved, the pin even being attached and in working order. It is a "T" brooch, *i.e.*, the pin works in a wide hinge at right angles to the brooch, forming a "T." In the II century the brooches were made with a small loop, by means of which they were fastened to the dress. In this specimen the loop, though worn, is still intact. "The brooch is somewhat the shape of a loop. It is of bronze, with a beautiful coating of green patina upon it, which has been given by the time. On the front is a double row of triangular depressions, the areas between which project in the form of lozenges. The specimen is $1\frac{1}{4}$ in. long, and $\frac{2}{5}$ in. wide in the center, and the hinge is $\frac{7}{10}$ in. wide.'

ANCIENT BRICKS FROM CHINA

SOME ANTIQUITIES FROM CHINA

MANY years ago when my father, the late Rear Admiral R. W. Shufeldt, United States Navy, commanded the Asiatic Squadron, he had an officer aboard his vessel who was disposed to collect in China such objects of interest to science as came in his way. Who this officer was has now escaped my memory, but on the Admiral's return to this country there were a great many relics among his effects, and among them three curious very heavy bricks, which, as time passed by, came into my possession, and are at this writing before me, and form a part of my private collection.

These antiquities I have taken the pains to photograph and a reproduction of that photograph illustrates the present article. The brick seen at the bottom of the stack in the figure was taken from the Great Wall of China and is probably one of the most perfect ones in this country. It is a heavy, rough, light grey colored adobe, with its angles and general surface much abraded and worn off. This brick measures 10 by 8 by $3\frac{1}{2}$ in. On its narrow side in front are some Chinese characters, inclosed in an oblong area of a depressed line, the depression being of the same depth as the characters.

The other two bricks in the illustration are both from the former famous porcelain pagoda or tower at Nanking. Since its destruction every vestige of it has been removed by collectors and tourists visiting that part of China. These bricks, as relics of that wonderful building of ancient times are the most perfect ones in this country. The upper dark colored one shown in the cut is a dense porcelain tiling, glazed a brilliant, rather dark green

upon all sides except the back and ends. On its outer surface there is a very prominent embossed figure glazed in a rich orange, causing it to stand out in bold contrast from the green surface of the brick. The design of this beautiful figure is shown in the cut, while the brick itself measures approximately 12 by 6 by 2 in., its long sides being beveled at an acute angle. Barring some chipping at the angles, this valuable relic is quite perfect and fully as glassy as the day it was manufactured.

The smaller, white, angular porcelain brick below this one is, as has been said, also from the Nanking Porcelain Tower. It measures 10 by 6 by 1½ in., the glazing being confined to what was probably the original exposed surface. For the rest, it is rough and still has some of the old cement sticking to it, though the texture of the porcelain is very fine. No inscriptions are upon it, and probably many others exactly like it were made by the builders.

History tells us that the celebrated Porcelain Tower of Nanking was the design of the Emporer Yung-lo during the first quarter of the XV century, and was destroyed by the Taiping rebels in 1853. When finally completed, few of the world's great buildings were more unique in appearance, or possessed such singular beauty. Octagonal in form, the edifice was carried up to a height of 260 ft., its outer walls being cased in white porcelain bricks, of which one is shown in the cut to this article and has just been described, while the overhanging eaves of its 9 stories were composed of green-glazed tiles like the specimen seen in the same illustration. A gilt ball, fixed to the extremity of an iron rod, projected from the summit of this pagoda, and the rod was encircled by 9 iron rings. Stretching from the apex of the rod to the eaves of the roof were a number of chains and to these were fastened 5 great pearls, which the inhabitants of the city believed protected the latter from floods, dust-storms, fires, tempests and riots. Over 150 bells and a legion of lanterns were also suspended from the eaves of this extraordinary edifice, the designing of which had occupied 19 years in the life of its royal architect.

R. W. SHUFELDT.

Washington, D. C.

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ANOTHER UNKNOWN TONGUE IN TURKESTAN.—Mr. A. Cowley announced in a recent issue of the Royal Asiatic Society's *Journal* the discovery of another unknown tongue in Eastern Turkestan. Dr. Aurel Stein brought back from the desert near Tun-huang a document in which the alphabet word is said to be Aramaic. The inscription reads from right to left, but the language, Mr. Cowley avers, is not Semitic and has no relation to the script found by Dr. von Lecoq. The document is written on paper, carefully preserved in a silk cover, which may indicate that it was an official letter or dispatch.

BOOK REVIEWS

THE PRIMITIVE ARYANS OF AMERICA[1]

THESE are instructive and suggestive books. Whatever may ultimately be thought of them, they deserve the careful attention of scholars; for they represent an incursion into a new and difficult field. One can but admire the courage of a man who seeks relief from pain by beginning such a task and then undertakes the "impossible." This is what the author has done, and he should have the credit which is his due. He recognizes and frankly admits the limitations of his work; but he has the courage of his convictions, and his suggestions should be weighed with care. It is not always easy to do this; for some of them are radical, and the meaning is not always clear, because the method of presentation is somewhat faulty. Less condensation and more detail in places would materially help the ordinary reader; for too much has been left to be supplied in the matter of phonetic laws and peculiarities, and the orthography of the language is such that mistakes are easily made in attempting to judge a given point.

Pioneer work is always tentative, and it is apt to contain serious blemishes. Certain infelicities can be found in these books because of these facts. It is manifestly impossible to "derive" a Mexican word from a Sanskrit one, to say nothing of deriving part of a Mexican compound or other word from such a source. A strong probability that the Mexican and Sanskrit elements had the same ultimate origin may exist, and it appears likely that this is what the author really means by the oft-repeated statement "I derive ——— from Sanskrit———." Such slips deserve indulgence rather than condemnation; for meaning is of greater importance than outward form, and the meaning seems to be as suggested, as other expressions clearly show.

Those who look merely at the surface of things are likely to condemn the books with scant courtesy, but those who look deeper will be more and more impressed with the weight of the accumulated evidence. Details are sometimes puzzling or disappointing, but in the aggregate there is too much of a substantial character to be the result of mere coincidence. It is too late to be dogmatic in such matters or to speak *ex cathedra* concerning them. No one can now say that no connection can ever be shown between Mexican and the Aryan tongues. That used to be said of the Semitic languages, but the thing has been done and done effectively not only by Möller but also by Drake. The one thing needed was a deeper study of the facts, and that has now been given. In this case, the "impossible" has become not merely possible but actual.

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[1] *Nauatl or Mexican in Aryan Phonology.* By T. S. Denison. Chicago, Ill, T. S. Denison, Publisher, 163 Randolph St. 12mo. Pp. 24
The Primitive Aryans of America. By T. S. Denison. Chicago. Same publisher. 12mo. Pp. 189.
Morphology of the Mexican Verb. Same author and publisher. 12mo. Pp. 31.

To appreciate what Mr. Denison has done, it is necessary to read all that he has to say, and it is necessary to read it with care. The phonetic laws which govern the Aryan group have been pretty thoroughly determined; but it must not be forgotten that Grimm's law faced many anomalies before Verner's was framed to meet the difficulty of repeated refusals to conform to the normal changes required by the principles laid down by Grimm. The field may not yet be exhausted, and thoughtful philologists admit the fact. Mexican may furnish the material needed for an extension of this field, if it occupies the intermediate position assigned to it by Mr. Denison, as it appears to do. Sure results in this particular mean enormous labor and endless patience; but the end seems reasonably certain to be as indicated by him.

It is certainly no harder to believe in his etymologies, so far as the present form of the words is concerned, than it was at first to accept the kinship of English wolf and Latin *lupus*, not to mention others that are similar. Herodotus was long branded as a liar, because he told the truth about the sun's course in Africa, and such experiences have been fairly common in the world. Truth always has to fight its way, while error often has an easy time in finding acceptance. For this reason, one needs to be careful not to be hasty. Profound men are often overshadowed by brilliant ones; but a later generation rates them both at their true values. Accuracy is therefore better than success.

The pressure of modern life has led to an unfortunate habit even among scholars; for source and externals, such as technical correctness of expression, rather than actual character or internal worth, have been the criteria by which such works as these have been judged. The title page has given the cue, and fault-finding is proverbially easy. The non-scientific character of such a mental attitude needs no portrayal, and it certainly calls for no commendation. For this reason, if for no other cause, these books should receive unusual attention and scholarly courtesy. They seem to contain a genuine contribution to the knowledge of the world along these lines; and, while they contain some things that will undoubtedly be rejected in the end, they also contain some that will be likely to stand. It is still too early to make any positive statements concerning details; but that the Mexican does contain a certain amount of Aryan linguistic material seems to be conclusively shown by the labor of Mr. Denison in this field.

Phonetic decay makes the task particularly difficult in many places and in various ways; but a process of elimination will ultimately solve the riddles and enable investigators to find solid ground beneath their feet. Phonetic laws must be determined with great care to cover the peculiar phenomena of this American tongue, and time and patience must be given freely to the task. Criticism is helpful and desirable, if it is needed. Condemnation is seldom either.

H. W. Magoun.

Cambridge, Mass.

THE HOLY LAND[2]

OF ALL the interesting descriptive writers, Mr. Robert Hichens is surpassed by few if any. In his last book, *The Holy Land*, he sustains his past reputation and presents us a vivid picture of Palestine. Although it is not an archæological book, yet it is full of archæological interest—how could any description of Palestine be otherwise?—for Palestine like Egypt is the personification of archæology.

The author takes the reader from Baalbec to Jerusalem and the Dead Sea giving most vivid pictures of the region. One paragraph concerning Baalbec will indicate the way life is given to all the places described:

> Never had I understood how exquisite white can look with gold, fragility with strength, that which has the peculiar loveliness that passes with that which has the peculiar splendor that endures, till I saw the piled golden stones, columns, and mighty walls of Baalbec rising into the sunshine among the white flowers of Baalbec's orchards. Baalbec must be seen, if possible, in spring, and seen at least once not only in the full glory of day, but also when the sun is declining. Then the Columns of the Sun are alive, so it seems, with changing and almost mysterious glories; walls, architraves, door-posts, capitals and tangled heaps of broken fragments, hold a romantic beauty of color such as I have not seen elsewhere in unpainted stone.
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> Among the ruins of Baalbec are remains that can only be called stupendous. So stupendous are they that in former days, as possibly now, many of the people of Syria believed Echmoudi, a demon, had reared them by his magic arts. To this day there are learned Orientals who declare that Baalbec must have existed before the flood, as only mastodons could have transported from the neighboring quarries the huge blocks of stone which are found there. The walls that are still standing are gigantic. The six Columns of the Temple of Jupiter the Sun,—once there were 54 of them,—are so nobly tall that they look as if they would fain soar to the deity whose glory they celebrate. Nevertheless, the ruins of Baalbec do not almost stupefy the mind as some ruins in Egypt do by their towering vastness. Although composed of the wreckage of many courts and buildings they are harmonious . . . . These ruins are very calm. They are bringers of peace to the spirit. They do not amaze too much, nor do they sadden. Indeed, they rather reassure, as the sun does, hinting at stabilities eternal, rectifying—how, we do not exactly know—our pitiful human imaginings, which travel too often toward darkness.

It is of intense interest to those who have been there, to those who are planning to go and to those who never expect to go. It makes Palestine a live country.

To many, however, the illustrations may prove the most interesting part. There are 18 pictures in color by Jules Guérin and 40 large halftone plates from photographs. These, together with a very beautiful cover design in colors, make the volume exceedingly handsome.

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[2] *The Holy Land.* By Robert Hichens, illustrated by Jules Guérin and by photographs. 8 vo. Pp. x, 302. 18 color pictures, 41 full page plates from photographs. $6.00 net, carriage 27 cents. New York, Century Company, 1910.

THE INFLUENCE OF WEALTH IN IMPERIAL ROME[3]

PROFESSOR DAVIS opens the preface to his volume entitled *The Influence of Wealth in Imperial Rome* by saying: "This book attempts to consider various phases in the economic and social life of Ancient Rome; such as has not been treated, except incidentally, in any English work, nor in any French or German work from precisely the same standpoint; a fact which gives justification for the present essay.

"The purpose is to consider the influence of money and of the commercial spirit throughout the period of Roman greatness. Sometimes a liberal interpretation has been given to the term 'Money Power;' and certain subjects have been discussed not at first sight closely connected with public finance or private industry and commerce. Yet the idea that the Romans owed much, both of their greatness and of their ultimate failure, to the supreme estimate they put upon wealth and its concomitants has never been lost from view."

The work, then, deals with the relation of money and wealth to the civilization of Rome. We are told how the greed for gain permeated the political organization; how it operated to encourage race suicide; how it despoiled the provinces—of men as well as of other resources. The opening account of the business panic of 33 A.D. reminds us that there is nothing new. The bankers of old had at times to contend with embezzlement, failure of their heavy depositors, hence loss of securities, runs on the bank and finally permanent suspension.

The titles of the chapters which follow indicate the line of treatment—*Political Corruption and High Finance; Commerce, Trade and the Accumulation of Wealth; The Expenditure of Wealth; Slaves, Freedmen and Plebians; Private Munificence and Some Modern Phases; Marriage, Divorce and Childlessness; and Some Reasons why the Roman Empire Fell.*

The disregard for human life when it stood in the path of material gain is brought out in the account of the treatment of slaves and the lower classes. One sentence sums it up: "The brutality of the Roman worldy wisdom, as well as its real ignorance of economic laws, is shown by the counsel of Varro, that hired free labor should be used on farms in unhealthy localities, so that the master need not lose by the dying off of his human live stock." But the picture is not entirely dark, for there were good as well as bad masters. If much wealth was accumulated by the few, the ordinary man was prosperous also in the period of peace during the early centuries of the Christian era. Along certain lines the rich were generous—usually expecting praise or other public benefit in return.

Although there is little direct comparison with the present day, the thoughtful reader can hardly escape drawing some comparisons and warnings.

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[3]*The Influence of Wealth in Imperial Rome.* By William Stearns Davis, Professor of Ancient History, University of Minnesota. Pp. xi, 340. $2.00 net. The Macmillan Company. 1910.

HISTORY OF ANTHROPOLOGY[4]

IT IS not an easy matter to condense the history of even so young a science as anthropology into a small volume; nevertheless, Doctor Alfred C. Haddon has been very successful in doing so in his *History of Anthropology.* The author recognizes this difficulty and the fact that many names of influential workers in this field can only be mentioned and others possibly as worthy must be left out entirely.

Although Aristotle can be considered one of the first anthropologists, the beginnings of the science can not be placed earlier than the XVII century. Unfortunately, its development has often been hampered by religious beliefs and prejudices growing out of tradition, retarding influences which even now have not entirely vanished.

The book is divided into two parts, the first dealing with the development of physical anthropology and the last part with the development of cultural anthropology. Regarding the former, Doctor Haddon says:

"Physical anthropology has had very numerous devotees who have approached the subject mainly from the point of view of small anatomical variations; but even at the present day the significance of many of the details is not understood, and very little advance has been made concerning the criteria of racial anatomy. We have yet to discover how adequately to describe or gauge the essential anatomical distinctions between races and peoples. This problem is complicated by our ignorance of the stability of physical characters, and of how far or how speedily they are affected by change of environment."

As to the latter he says:

"Cultural anthropology has been too much at the mercy of students who have not received a sufficiently rigorous training."

To the lay reader this short history of anthropology will be very acceptable, especially in this age when few have time to read extended works on the multitude of subjects demanding their attention.

EDITORIAL NOTES

LOCATION OF THE HOMERIC ITHACA.—Still another location for the home of Ulysses has been proposed within the last few weeks. Doctor Cavvadias of the University of Athens selects the Ionian island of Cephalonia as the Homeric Ithaca, instead of either the ordinarily accepted Ithaca, or Leucadia. Doctor Cavvadias bases his claims upon 100 Mycenæan tombs discovered there.

[4]*History of Anthropology.* By Alfred C. Haddon, Sc. D., F. R. S., Fellow of Christ's College, University Reader in Ethnology, Cambridge. With the help of A. Hingston Quiggin, M. A., formerly of Newnham. Pp. xix, 206. 9 illustrations. 75c. net. G. P. Putnam's Sons, New York. 1910.

GERMAN EXCAVATIONS AT BABYLON.—The Germans continue excavations at Babylon. Their work in the last year was divided between private houses, the fortifications, the citadel, including the palace, and the Tower of Babel. A large area of houses and streets from new Babylonian times was uncovered.

ANCIENT BRONZE STATUE FOUND AT CAIRO.—From Cairo come reports of finding an ancient bronze statue which seems to be the first specimen of a Hittite deity executed in the round which has been found. It represents a goddess standing on a lion. She wears the Cappadocian or Hittite style of tiara and carries an infant in her arms.

EGYPTIAN PAPYRI FOR UNIVERSITY OF PENNSYLVANIA.—Professor Max Muller of the Unniversity of Pennsylvania returned from Egypt in November last with a valuable collection of Egyptian papyri. He also brought copies of 300 inscriptions from the island of Philæ. It is believed that the floods of this winter will completely cover the island, so Professor Muller's work was the final excavation on the site.

BURIALS IN JARS ON ISLAND OF CRETE.—Mr. Saeger and Miss Hall, working at Gournia for the Philadelphia Museum, report about 150 burials of an entirely new type. The bodies were in "inverted jars of pottery, with the knees drawn up to the chin, the corpse having been trussed and put into the jar head foremost, so that when the whole was inverted, the body remained in a sitting posture." The date is said to be a little earlier than that of the chamber-tombs at Knossos, and neither difference of period nor difference of wealth seems sufficient to account for such divergence between the two modes of burial.

"MOUNT OF DIVINITIES" ON CYPRUS.—It is reported that Doctor Max Richter who has been excavating at Rantidi on the island of Cyprus has made finds of great archæological and ethnographical importance. He considers the hill of Rantidi as a mount of the gods, where Zeus and Apollo as well as Aphrodite and others were worshiped. Ruins, chiefly the foundations of supposed temples, were found as well as altars, statues and inscriptions. Doctor Richter is quoted as saying that this will not only enlighten us as to general ancient Greek mythology, but may inform us of hitherto unknown pure Greek cults and habits of worship back as far as Homeric times.

CHURCH DISCOVERED ON MOUNT OLIVET.—The Greek Catholic order of "White Fathers" is carrying on excavations on the grounds of the Carmelite Convent of Pater Noster on Mount Olivet, Jersualem. About 6 ft. below the surface the ruined walls of a church were met with. The church is about 150 ft. long and about 60 ft. in average width at the nave. In the middle of the floor of the south transept is a depression about 4 ft. sq. and 2½ ft. deep. This was probably the baptismal font. It is well preserved, as is also the plastering on the sides of the wall

enclosing this transept. There were two or three tombs on one of which was inscribed in Greek "Theodorus." The church seems to have been built by Queen Helena, mother of Constantine, during the IV century.

ROMAN VASE FOUND AT HULL, ENGLAND.—Some months ago a fine complete Roman vase was found during excavations in Thoresby Street, Hull. This is the first Roman object ever found in Hull. It is ornamented around the middle by cross-hatching, probably made before baking. The vase has two handles, and shows marks left on it by the tree roots which had entwined it. Nothing was associated with it, which is natural, as the site of Hull was under water in Roman days. The vase probably dropped overboard from some vessel sailing over.

INTERNATIONAL SCHOOL OF AMERICAN ARCHÆOLOGY AND ETHNOLOGY.—On January 20, 1911, President Diaz of Mexico formally dedicated the International School of American Archæology and Ethnology in the city of Mexico. The School has for its object the advancement of the study of American archæology, ethnology and anthropology. This is to be accomplished by the proper training of men for making thorough investigations; by undertaking scientific investigations; and by publications, instruction, etc.

The patrons of the institution are the Governments of Mexico, Prussia and France, the Universities of Columbia, Harvard and Pennsylvania. Other governments and universities may become patrons by accepting the statutes of the school. The school is to have protectors also. The Hispanic Society of New York has been named as such.

The director is to be appointed and paid by the patrons in turn, and is to hold office for one year. The professors are to be appointed by the managing committee, composed of the delegates of the patrons and protectors. A few days after the inauguration, the first class assembled under the direction of Doctor Eduardo Seler, delegate from the German Government, in the Hall of Monoliths of the National Museum.

BURIAL CAVE IN PULASKI COUNTY, KENTUCKY.—Last summer Mr. W. L. Griffin of Somerset, Kentucky, explored a cave in Pulaski county, Kentucky, in which he found considerable material of interest. The cave is situated near the top of a bluff facing the South Fork of the Cumberland river. It is 15 ft. wide by 7 ft. high and extends back about 40 or 50 ft. As he first entered, Mr. Griffin found a large piece of a skull on the floor. He then examined the surface of the floor, finding 7 or 8 shell beads. Later, after he began digging, a large circular gorget of shell measuring $3\frac{3}{8}$ in. in diameter came to light. It has two holes close together near the edge. The work on that first day yielded a large number of teeth and bones, as well as 36 shell beads and the gorget mentioned.

A few days later he returned with 3 men. They made a systematic search, screening all the dirt dug up. The skeletons had been disturbed and were badly scattered. The men made several trips to the cave, finding among other things numerous shell beads of various sizes and shapes, a

few shell gorgets, two fresh water pearls (perforated), perforators, a cupped shell gorget on which was partly engraved the figure of a man, and two or three bone awls. What Mr. Griffin considers the finest artifact found in the cave is "an oblong gorget of shell measuring 3 by $3\frac{1}{4}$ in. Each corner has been notched out and on each side a piece $\frac{1}{4}$ by $\frac{7}{8}$ of an inch has been removed from the edge, making it resemble an old-fashioned picture frame."

Mr. Griffin estimates that at least 11 bodies were buried in this cave. Only one skeleton was found in anything like completeness. It was "bundled" near the wall of the cave with the skull, which was badly crushed, on top.

TABLET UNVEILED ON A WISCONSIN MOUND.—The preservation of the two Indian mounds which are in the Wisconsin State Fair Park at West Allis, Milwaukee County, is now doubly assured. Between 7 and 8 years ago the Park Board agreed to preserve the mounds, but until last September no suitable tablet had been erected. The Wisconsin Archeological Society on September 15, 1910, erected a bronze tablet on the larger of the two mounds amidst fitting ceremonies.

The group originally consisted of 4 mounds, on the edge of an Indian village site. One was destroyed in the course of the construction of the Chicago and North Western railroad, and the other in 1903 by mistake, after the Park Board had promised to preserve the 3 mounds. As far back as 1845 the group, then surrounded by a grove of trees, was known to the settlers. About that time Reverend Lucius Doolittle, an Episcopal clergyman, carried on some excavations in one or two of them in the course of which he uncovered a complete skeleton and several brass or copper kettles of "fur trade" pattern. The bones were reinterred, but were later dug up by careless relic hunters. All of the mounds suffered from promiscuous and unintelligent digging, the results of which are unrecorded beyond mention of human bones, fragments of earthenware vessels and a few rude stone implements found.

FIRST UNIVERSAL RACES CONGRESS.—Those in charge of the Universal Races Congress which will be held in London, England, July 26 to 29 this year announce that

> The object of the Congress will be to discuss, in the light of modern knowledge and the modern conscience, the general relations subsisting between the peoples of the West and those of the East, between so-called white and so-called colored peoples, with a view to encouraging between them a fuller understanding, the most friendly feelings, and a heartier co-operation. Political issues of the hour will be subordinated to this comprehensive end, in the firm belief that, when once mutual respect is established, difficulties of every type will be sympathetically approached and readily solved. Resolutions of a political character will not be submitted.
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> The following is the Programme for the 8 half-day Sessions: 1. Fundamental Considerations—Meaning of Race, Tribe, Nation. 2-3. General Conditions of Progress. 3a. Peaceful Contact between Civilizations. 4. Special Problems in Inter-Racial Economics. 5-6. The Modern Conscience in Relation to Racial Questions. 7-8. Positive Suggestions for Promoting Inter-Racial Friendliness.
>
> It is proposed also to hold in connection with the Congress an exhibition of books, documents, photographs of the highest human types, skulls, charts, etc. The Exhi-

bition is under the direction of Dr. Alfred C. Haddon, ScD., F.R.S., and promises to be of vital interest.

A prospectus will be sent free of charge on application to the Hon. Sec. of the Congress, Mr. G. Spiller, 63 South Hill Park, Hampstead, London.

ARCHÆOLOGY AT THE BELGIAN EXPOSITION OF 1910.—In 1903 the Belgian government created a Division of Excavations, connected with the Ancient Belgium Section of the Royal Museums. The province of this Division was to supervise works of a nature to bring about the discovery of objects possessing archæological and enthnological interest; to assure the preservation of such objects and to make a study of the beds where they were found. A special appropriation was made to provide for preparing restorations of the surroundings in which such finds were made, particularly with reference to exhibiting them at the Exposition of 1910. These were represented by rough models of such archæological relics as tombs of various types, a town, and the foundations of a Roman villa.

At the Belgian Exposition of 1910, this Division exhibited its work in such a manner as to show the successive stages of the various restorations from the discovery of the object to its complete restoration. Among the exhibits were various utensils of the stone age; hatchets of the bronze age; urns of the iron age found in the cemeteries of Luikgestel, Bellefontaine and Biez; javelins, battle axes, swords and jewelry of the Frank epoch; the ornamented chariot of Denderwindeke of the Belgo-Roman epoch. The colored models of the different objects were placed beside the originals.

Eight models were exhibited, representing: the two dolmens of Wéris, $\frac{1}{4}$ natural size; the neolithic *marchet* of Fagnolle, reduced $\frac{1}{12}$; a *marchet* by incineration of Han-sur-Lesse, reduced to $\frac{1}{12}$; a tomb of Sibret, reduced to $\frac{1}{12}$; the Belgo-Roman town of Ti-Château, reduced to $\frac{1}{100}$; one of the Belgo-Roman tumulus of Tirlemont reduced to $\frac{1}{32}$; and finally a relief map of the Belgo-Roman villa of l'Hosté at Basse-Wavre.

Numerous photographs further aided in the presentation of the whole field of archæological research in Belgium. There was a series of photographs representing the various stages of advancement in excavations; a series of the Grotto of Spy; another of the work at Neckerspoel, where an iron age canoe was found; another of the tumuli of Bellefontaine; another of the various tombs of the Belgo-Roman epoch; another of the Frank cemetery of Villers-devant-Orval, etc.

There were in addition 4 oil paintings by M. J. Du Fief, representing a group of *marchets* at Boussu-en-Fagne; a view of the necropolis of Bellefontaine; the site of the shelter of Ossuaire; and the rock shelter of the neolithic burial of Vaucelles.

The interest which the public and the press has taken in the work of this Division has been very gratifying to those connected with it.

ANCIENT TEMPLES OF PERU.—In our interest in archæological researches in our own country and in Europe and Africa we are sometimes in danger of losing sight of the wide field for such work in South America. An article in the December, 1910, issue of the *Bulletin of the Pan American Union* by Mabel Loomis Todd brings before the reader some of the ancient

temples of Peru, particularly that of Pachacamac, named from the "creator god" some little distance from Lima. Little remains except portions of walls, still showing bits of mural paintings; indications of terraces, courts and avenues and a labyrinth of streets; and thousands of skulls scattered on the desert sand surrounding the site, testifying to the devotion of the multitude who formerly worshiped here and longed to die near the shrine. Doctor Max Uhle, head of the National Museum of Lima, has done much work in connection with this site.

Pachacamac has been the scene of several superimposed civilizations. It seems certain that pre-Inca Indians had their chief temple here, and that when the Incas arrived they treated the faith which they found with respect, so that although they built their temple to the sun on the hill above, the prestige of the older temple continued.

As many as 60,000 or 80,000 graves lie in the immediate vicinity of the temple. Some were stall-like cells, much cruder and earlier then the majority. Most of the graves were long since rifled for the gold, silver and gems supposed to have been interred with the dead. The bones of the earlier race and the unbroken mummies of a later epoch are mixed together promiscuously. Probably previous to the Inca conquest at least two civilizations met at Pachacamac—the culture of the highlands and that of the coast. A third epoch shows cultural decline. The growth of the Inca Empire was one of the last great events of pre-Spanish times.

The old city was evidently enlarged twice, as shown by traces of newer walls outside the original limits. The city was about $2\frac{1}{2}$ miles by $1\frac{1}{3}$ miles in extent. Coming from the north the convent, called by its ancient name, Mamacona, ("mothers" as applied to the nuns) is first seen. This building, secluded on 3 sides, accomodated as many as 200 of these maidens who were attached to the temple of the sun. The temple of Pachacamac next engages the attention. It is a huge structure 400 by 180 ft. The walls were originally covered with polychrome frescoes, traces of which may still be seen. Such paintings were used only on sacred edifices. The date is supposed to be bewteen 2000 and 1100 B.C. This temple was regarded with extraordinary reverence, hence after its destruction by Pizarro it was an object against which fanaticism was especially directed, and consequently it is more completely ruined than others in Peru. It was smaller and more gorgeous than the temple of the sun close by. In addition to the paintings mentioned, quantities of gold and jewels were used in its decoration.

Fully one fourth of the ancient city was occupied by the temple district. The remainder was divided by cross streets 13 and 16 ft. wide, with courts and buildings. Walls encircled the city. On the north west the barriers were from 11 to 13 ft. high, and in general 8 ft. broad, though in places the width was increased to 16 ft. Many of the houses were entered from the top. The sun temple is the most conspicuous ruin, rising, as it does, 300 ft. above the general level on a series of terraces. On one of these is a cemetery devoted exclusively to women—sacrificial virgin sun maidens. Another cemetery gave evidence of having been the burial place of the Inca nobility only.

STELA OF ATETA AT SAKKARA. GENERAL VIEW

RECORDS OF THE PAST

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THE BELIEF OF THE ANCIENT EGYPTIANS, ETRUSCANS, AND GREEKS IN THE FUTURE WORLD AS SHOWN BY THEIR STELAE, BURIAL JARS AND GRAVE RELIEFS

PART I

THE belief in the immortality of the soul, or, at any rate the hope for a future existence has been common to all peoples of all ages. The manner in which different peoples have expressed this belief and hope is as varied as are the peoples.

There are certain civilizations of great antiquity that have had a great influence upon historic nations of which we have had but little real knowledge till comparatively recent times. Among these, perhaps, the ancient Egyptians have held a foremost place. Fortunately they left an extensive literature carved on stone or written on papyrus, which has become known to us through the discovery of the Rosetta Stone in 1798. Excavations carried on vigorously for the last 15 years or more have also, through the multitude of objects found, added greatly to our knowledge of this people that lived 6,000, perhaps 10,000 years ago.

A second civilization of which we know less was the Etruscan. That these people came originally from the East seems clear and that they were materially influenced by the Egyptians and by the people of the Mycenean or Minoan age seems also clear.

A third civilization, influenced by these two, and one that exerted a tremendous influence in turn upon all the world since is the Greek.

The belief of these three peoples in a future life, and the manner in which they indicated this belief by their funeral stones and jars is the subject of this inquiry. The subject naturally divides itself into three parts: I. Ancient Egyptian Sarcophagi and Stelæ. II. Ancient Etruscan Burial Jars, so-called Canopic Vases. III. Ancient Greek Grave Reliefs.

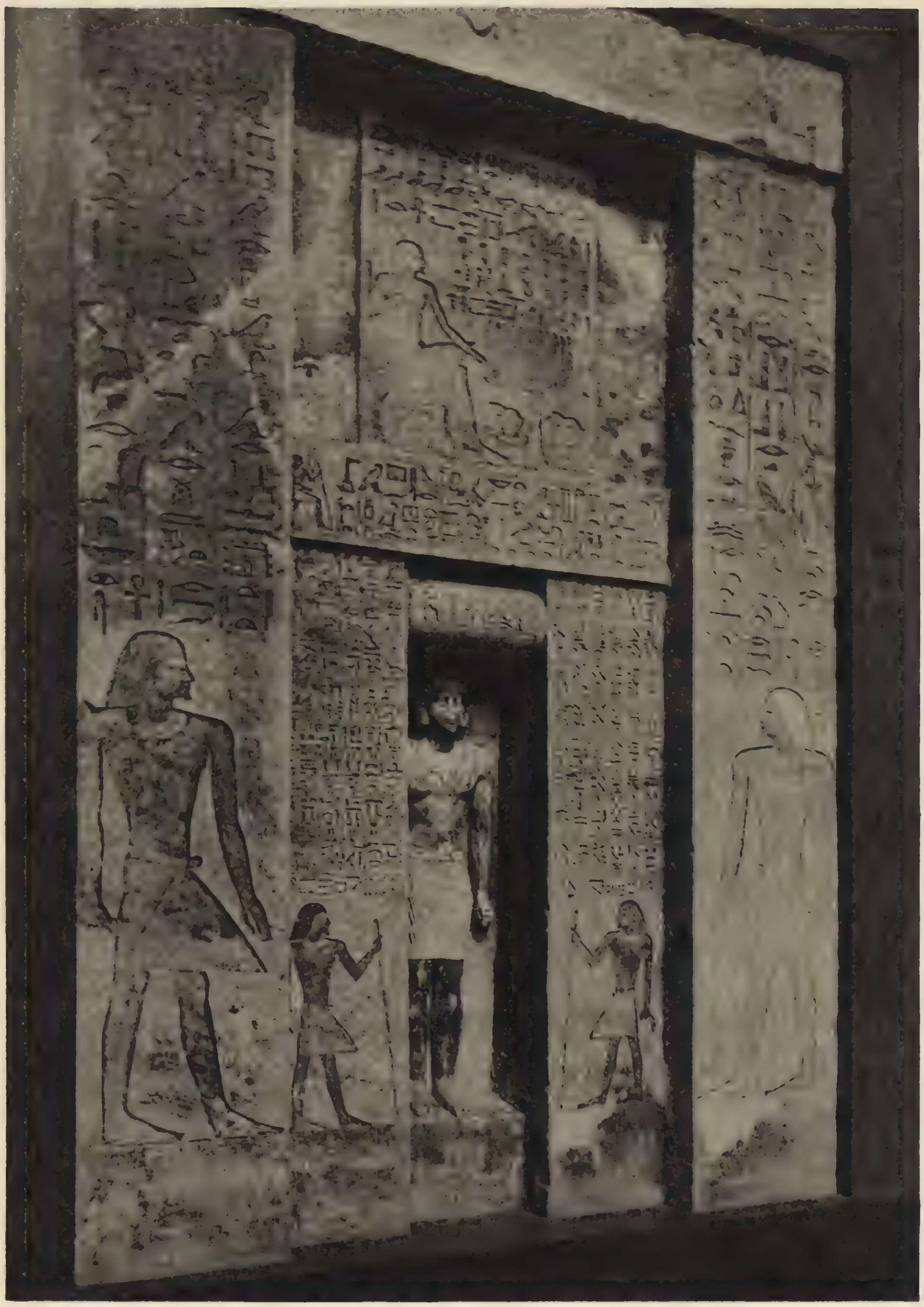
EGYPTIAN SARCOPHAGI AND STELÆ

The religious belief of the ancient Egyptians was most complicated. They saw gods, both beneficial and harmful, everywhere. They did not all see the same gods nor at all times. Their imaginations ran riot. One looked into the sky and saw a great cow with her head to the west. The earth was between her fore and hind feet and her belly was studded with stars. Others looked into the same sky and saw a great female figure with her feet in the East and, bending over the earth, she was supported by her arms and hands in the West. Still others saw the same sky as a sea supported by four columns, the four columns of the firmament.

The sun was a god and no wonder. Who would not worship this great, heavenly, mysterious body which brought to them so much of life? The great hawks that soar sky-ward till they disappear, they must be comrades of the sun, and they too are gods. The river Nile was divine—did it not bring them their very sustenance?

But religion grows, too, from the worship of ancestors. Man dreams and "sees" his dead friends. He sees shadows, he sees reflections in water in the eyes of others and he believes in "doubles." This was not a belief of the ancient Egyptians alone. We shall see that the Etruscans also believed this. Believing in "doubles" man is led to the preservation of the body. In Egypt this was a very possible thing owing to the character of the climate and soil. Therefore the Egyptians preserved the bodies of their dead. And, inasmuch as the man needed a house so, too, the body needed a house to dwell in on account of the existence of the soul. Hence the receptacles of the body, the sarcophagi, are made to resemble a house at first. This is usually not elaborately decorated on the outside though one figure never fails to be found there. This is the representation of the two eyes, which being placed on the outside just where the eyes of the dead man would be found within, marked the entrance to the eternal dwelling place for the soul, or "ka." Within there is elaborate decoration often in bright colors. On the east side, corresponding to the eyes on the outside, is drawn the door through which the "ka" could come and go. On the walls are provisions of all kinds piled high, and all sorts of offerings; besides these formulæ and prayers often of great length, are carved upon the sides and ends.

As the religious beliefs and practices develop, so too, side by side with them, the provisions for the dead keep pace. With the dead are buried many valuable things and consequently the fear of thieves arises. This requires more care in the planning and building of the tomb chambers and in the concealing of them and also leads to the making of a double, a "ka," for the body, a statue which shall resemble the dead man. This was a



STELA OF ATETA AT SAKKARA. NEAR VIEW

reasonable substitute for the dead and therefore art grew up as a striking realism. As a further result deception was practised in the making of images and hundreds of statues were made. In time exactness of imitation becomes less and less. Mummifying of the bodies seems to go with this and the image now often imitates the mummy. So Egyptian art tended more and more toward symbolism. The Egyptian never seems to have been able to detach the idea of the future life entirely from the body. Gradually he built up more and more elaborate tombs till we find the huge pyramids of stone scattered along the banks of the Nile for many miles south from Cairo, and in the Theban period we find the elaborate and intricate tombs of the kings, the queens, and the nobles in the hills opposite Luxor. With the coming of the tomb-chambers we find also statue-chambers, where were placed statues exactly like the dead. To this statue the dead man's "ka" might therefore attach itself. Here then offerings could be made to the dead. Originally these offerings were real food, a loaf of bread, possibly some wine, placed upon a reed mat within the tomb. As this food did not disappear it occurred to them that ka-food would be cheaper and easier to provide, as it needed not to be renewed, and would be quite as acceptable to the ka-man. Oftentimes a man might leave a fund of money to provide for permanency in this service. All of this meant more and more elaborate and expensive tombs and equipment therein. This in turn meant more and more danger of robbery and led to greater cunning in the concealment of the real tomb-chamber. Concealment was attempted by cutting long passages in the solid limestone hills and by making at the ends of the passages the tomb-chambers. The entrance to the corridor would be concealed. As these were easily discovered and the mummy rifled, secret chambers were made on the sides of the corridor, or possibly at a lower level and the entrance to this was then walled up so as to conceal the presence of the real tomb-chamber. False doors would then be fastened upon the walls of the corridor or rooms left open to the public. These were sometimes carved in the solid rock and sometimes were merely slabs of stone fastened to the walls. Such a slab of stone is called a "stelæ." In every period of Egyptian history these stelæ were either funeral monuments found in tomb-chambers, as just indicated or they were votive monuments set up by kings or others in the vicinity of temples or along important highways leading to temples. These monuments seem to have had originally different shapes, depending upon the district from which they came. Those of the Memphite period were rectangular, because the houses of that time had flat roofs; those of the Theban period were usually rounded at the top.

Let us examine first stelæ of the Memphite Period. These represent the facade of a house together with the door that opens into the house, the more important part being the door. Undoubtedly the false door, represented on the stela, was originally a real door, opening from the corridor of the tomb into the chamber where the dead man's body lay. One can see plainly the door posts and the lintel as well as the round bolt upon which the door swung. For the sake of better concealment of the body the door-way was later walled up solid and the outlines only of a door were

STELA FROM SAKKARA. THE STELA HAS BECOME ONLY A RELIEF REPRESENTATION OF A DOOR

carved on the wall of the last chamber accessible to the living, at the spot behind which it was known that the dead man lay. At first the false door was a real part of the wall and built like the rest of the wall, but in time it was regarded rather as something apart from the wall and so was made of a single stone and generally affixed to the wall where the false door was usually made. The Memphite stela thus becomes the "kiblah" which marked the direction where the dead man lay and the place where his "ka" might pass through. So in front of this stela, thus marking the position of the door, the food was placed, of which it was thought the dead man would want to partake. There are some stelæ which make this fact very clear and a series of 4 may be mentioned which illustrate the changes that the belief underwent.

In the tomb of Maruruka at Sakkara the door-way proper of the stela is not left blank but the figure of the dead man is represented standing in it with one foot advanced as if about to descend the flight of steps into the chamber where the friends and funeral feast would be found. The figure is so life-like that in the dim, religious light of the tomb-chapel the gathered friends might easily imagine that Maruruka was with them. On the stela of Ateta, also found at Sakkara, the ka-statue of the deceased is also represented as standing in the doorway but in this case he stands with both feet together as if contemplating the scene before him but not about to become a part of it (Figs. 1 and 2). In another tomb the entire figure of the dead man is not shown but only the head and shoulders as if the occupant of the tomb were lifting himself up merely to look over into the chapel. A fourth stela, coming indeed from a much later time but in the form of the Memphite period, represents none of the body of the dead person at all but only the head appears above the top of the door.

Thus we see in 4 scenes 4 stages of progress represented by these stelæ. Nibari raises his head, Nofirsimuphtah lifts himself partly up above the top of the door, Ateta shows himself entirely in the door way but stands awaiting the end of the sacrifice, and Maruruka moves forward to partake of the offerings.

The earlier Memphite stelæ very closely resemble real doors. Door-posts, lintels, cornices, all the parts of a real door are easily distinguished. Later they lose their architectural significance and become rather lines or narrow bands. They become only relief-representations of doors, the surface becoming almost if not quite flat that the field may lend itself better to decoration. (Fig. 3)

The inscriptions found upon these stelæ were important, and developed together with the door itself. In the beginning, on the round or half-round bar, was the name of the occupant of the tomb. On the door posts the name with titles, and, in relief, the seated or standing figure of the dead. On the lintel was a prayer or religious formula asking for the protection of the gods. These formulæ were many and varied. The rest of the decorative scheme of the tomb was carried out on the side walls of that chamber and consisted of agricultural and other scenes from the earliest processes of preparing the soil to the finished product of bread and cake from the grains raised. All that interested the dead man in his life time is here

depicted for his delight in the tomb. If he was interested in cattle raising every scene in the life of cattle is represented. The same thing is true with reference to other occupations, such as weaving, the making of shoes or pottery, the building of ships, etc.

In addition to such scenes the preparation and the serving of a great feast is almost universal. Beef cattle are butchered and cut up; beer and other drinks are provided; geese are fattened and prepared for the master's table and scenes of all descriptions are found telling of the elaborate preparations which were made for the lord's happiness.

Upon the lower registers of the relief were represented the scenes meant to be nearest to the spectator. Those higher up were supposed to be further removed. As time went on these stelæ with their prayers and formulæ became an adequate provision for the deceased. If it were read by a priest or a member of the family or even by a chance passerby, it made certain the well-being of the dead. Even if the chapel were destroyed this would be true so long as the stela was intact. The stelæ, therefore, became the important factor in the need of the human being for provision in the after life, and could not be used alone and apart from the tomb and tomb-chapel. The lines then which represented the parts of a door now disappear altogether. The stela becomes only a rectangular slab on which various scenes and inscriptions are grouped often times in a novel way. The deceased sitting at this table is not now the essential part as formerly. Portraits of different members of the family have been added, those who make the offerings. Finally there are at times pictured the forms of gods who preside over the offerings and the two eyes are drawn in the place where the figure of the deceased used to be.

We have been speaking of stelæ belonging to the time when Memphis was all-powerful. When, beginning with the XI dynasty, Memphis lost her power and Thebes, 600 miles up the Nile, became the center of influence, new gods and new ideas of worship crept in. We shall find that the stela, too, changes in form somewhat, in decoration and significance much more. Stelæ in the Theban period gradually change from the rectangular slabs to those with rounded tops, the former, after a time, entirely disappearing. The rounded top undoubtedly represented in the beginning of the Theban Empire the shape of the tombs of that time. As we have just seen the square stela, by the end of the Memphite period, came to represent the entire tomb-chapel. This was also true, doubtless, at the beginning of the Theban period and some of them still represented a false door, but only by very flat surfaces. A cornice they might have, sometimes sculptured, sometimes only painted, and bands in similar fashion represented posts. Soon, however, all semblance to a door disappears and we find a perfectly flat surface which lends itself easily to inscriptions and reliefs. The scenes which we now find upon these stelæ illustrate well the changes which have come since the earliest conceptions. Let us take a single example and examine it somewhat in detail with reference to these changes.

The stela of Antufi, a Theban prince of the IX dynasty, is a good illustration. At the bottom of the stone, in the center, is repre-

sented the door of two leaves, fastened with a bar. Upon the left of the door are two gazelles led by slaves which are being brought for sacrifice and for the lord's feast. The higher register indicates greater distance from us and the animal is consequently slightly smaller. Upon the right of the door, at the bottom, slaves butcher and cut up a beef. Above this, reaching to the top of the door, is an inscription. Occupying the middle register of the stela, Antufi is seated on a chair under a canopy. Behind him are two slaves, one of whom fans him and the other brings to him his staff and sandals. Beneath the master's chair sits his faithful hound. Directly in front a slave reaches out to Antufi a large, shallow bowl containing some sort of liquor. Behind him approach two other men, one bearing a haunch of meat, the other carrying on his head a basket of food. Here also are displayed other provisions of all sorts and in great quantity, together with the standard which supports the ostrich feathers, indicative of high rank. Upon the upper third of the stela is cut an inscription while at the very top is a cornice-like relief running across the full width of the stone.

We remember that in former times all this display of food was made not upon the stela but in relief upon the side walls of the tomb. As the space on the stela is cramped the details are not so numerous as formerly but doubtless the stela has now become a sort of summary of the entire tomb of former years. That there has been a radical change in the beliefs regarding the future life since the Memphite period is revealed by a study of the pictures and inscriptions upon these Theban stelæ. The early idea was that the dead man continued to live in his "ka" which went in and out of his tomb at will and his statue was represented in the false door. In the latter part of the Memphite period and continuing on into the Theban the two eyes are found figured on the stela where formerly the lord sat. They are all that is left of him and they seem to indicate, as well as the eyes usually found upon the sarcophagi, the master looking out of the tomb at the sacrifice and worship going on without. Later on the freedom of the "ka" is enlarged and he is thought of as being able to leave the tomb entirely and dwelling apart from it. There are now several "kas" for the same man, some of which may remain in the tomb, while others may fly afar. As we have already seen this gave rise to the multiplying of "ka" statues so that we find large numbers representing the same man.

In spite of the enlarged freedom of the "ka" given by this new conception, it is still felt that the soul must be fed and provision be made so that it might escape a second death. Here, too, a new conception grows up which effects the formula upon the stela. Formerly the formulæ asked that FOOD and DRINK be provided for eternity FOR THE KING, AND THE GODS of the lower world, Anubis and Osiris, in ORDER THAT daily the PRIEST MIGHT HAVE SUSTENANCE in the form of food and wines. The new formula reads that the KING GIVES a table of offerings to the god in order that THIS GOD MAY PROVIDE funeral feast of all good things for all times to the "ka" of so-and-so.

It is therefore no longer necessarythat the dead man be present at the sacrifice. Some god as his intercessor presented offerings to the "ka"

of the dead man, no matter where he might be. Inasmuch as the place of abode might vary these formulæ were addressed to many gods and the chances that the dead man would be benefited were so many times increased. The actual offering of provisions is not now necessary but prayer to the gods will insure all that the dead man needs. So the pious man believed that he did a good deed if he said these formulæ. He thereby assured favor for himself when he died. No tomb-chapel is now needed. The round-top stela takes its place. It may be located apart from the actual burial place. Stelæ were therefore placed in sacred enclosures or along roads frequented by pilgrims and the passerby was called upon to say a prayer for the dead as he went.

As the Theban period advances changes in the shape and the decoration of the stelæ are made corresponding to these new ideas. Gods now appear, naturally, for the offering and the prayer is to them. They stand or sit upon the left and a table heaped up with offerings is in front of them. Various emblems are carved about them while at the top is the winged solar disc.

The two eyes are there also. These are the eyes of the dead, one representing the sun, the other the moon. Then come two jackals, the guides of the sun through the regions of the South and the North. Many other symbols are found, some on one stela, some on another, according to the belief prevailing in different localities. Rarely however, is the winged sun's disc omitted.

A later step is what might be expected on account of man's proneness to exalt himself. Friends and relatives of the deceased, who endeavored to fulfil the rites due to the departed, desired to figure on the stela. From the XII dynasty onward this desire caused a great change in the outward appearance of the stones. Formulæ became short, scenes of worship are abbreviated, and the entire surface of the stone, so far as possible, is covered over with small rectangular divisions containing tiny squatting figures with short inscriptions attached. These are the ancestors and descendants of the deceased to remote degrees of relationship. When the number was too great for all to appear their names only were carved in long rows which might cover the entire front and even the edges and back of the stela. These names are to remind others that their owners had a part in the rites of the honored dead and also to indicate the hope that they may thereby merit a like honor.

The next important change in the stelæ took place toward the end of the first Theban empire. Amenhotep IV, upon his accession at Thebes, causes a religious revolution. The worship of Amon, the great god of Thebes, he tries to abolish. The power of the priesthoods had become very great and immoral. They sapped the life-blood of the people by their practises, the sale of indulgences, mystic formulæ, etc., to assist the dead in passing through the darkness of the lower world. In order to abolish this worship and to break down the power of the priests Amenhotep moved the capital from Thebes, called Amon a false god, and instituted the worship of Aton. He himself dropped the name of Amenhotep which savored of Amon and called himself Ikhnaton, the beloved of Aton. While he made no attempt to conceal the identity of this god with the former sun-god

"Re," yet he intended that much more should be implied than simply material worship, or rather the worship of the material sun. He tried to deify the vital heat which came from the sun and brought life to all beings. So the god was thought to be everywhere present in his "rays." In this thought lay the chief change in the stelæ. The symbol of the god was a disc in the heavens, from which darted forth earthward multitudes of rays each ray terminating in a hand, each hand grasping the symbol of life.

But the power of the priests of Amon was too great. They fought the new idea and prevailed. Within 25 years, probably, Amon was restored and the capital was moved back from Amarna to Thebes. A stela of this period shows the sun's disk with numerous rays extending hands toward Ikhnaton.

After the restoration of the worship of Amon his priests went everywhere disfiguring stelæ and temples that had been erected to Aton.

We have now traced the practises of the Egyptians in the matter of burial and burial reliefs from the earliest times down to the time when foreign nations came in from the East and brought changes in this respect as well as in many others. With the coming of the influence from Syria, Greece and Rome it may be said that the real character of the ancient Egyptian passed away and we turn rather to other nations to inquire into their practises and beliefs in this regard. That the Egyptians had a marked influence upon these other peoples we shall see as we turn first to the Etruscans and later to the Greeks.

Edward W. Clark.

Rome, Italy.

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PRESERVATION OF ROMAN BOAT FOUND IN THE BANKS OF THE THAMES.—The old Roman boat found some months ago at Lambeth has now been treated with several coats of glycerine and remains in an excellent state of preservation. It is nearly 50 ft. long and weighs more than 6 tons. "The ribs, which have been almost flattened out by the weight of the mud which for so many hundreds of years has rested upon them, are fastened to the keel by wooden pegs, which are still well preserved. There is practically no sign of decay in the whole structure, which is complete save for a small portion of the stern which some 20 years ago was accidentally cut away by workmen who were building a warehouse." The coins found with it fix the date of the vessel within 30 years of the close of the III century. Other things found were rams' horns coated with mud, almost like cement; pieces of Roman pottery and horse shoes made of charcoal-smelted Sussex iron. The spot where the boat was found is 25 ft. below the level of the river at high water, some 60 yards from the present bank.

FIG. I. ETRUSCAN TERRA-COTTA HUT-URNS.

THE BELIEFS OF THE ANCIENT EGYPTIANS, ETRUSCANS AND GREEKS IN THE FUTURE WORLD AS SHOWN BY THEIR STELAE, BURIAL JARS AND GRAVE RELIEFS

PART II

THE ETRUSCAN "CANOPIC" VASES

This ancient people of Italy has long been the source of an interesting inquiry on the part of classical students and antiquarians as to who they were and where they came from. The ancient Greeks and Romans themselves did not know and advanced different theories. That they were Lydians was the belief of many and some modern scholars have accepted this theory as probable. Others have argued that they were natives to the soil of Italy, a theory that seems hardly tenable in the light of all the facts. Many objects found on the sites of their cities together with certain similarities seen between their language and the archaic Greek savors of a close connection, at least, with that people. Until some scholar shall be so fortunate as to hit upon the key to their language the mystery of the origin of this people is likely to remain unsolved. Striking likenesses between objects discovered in their tombs and others found in Greek lands and referred to the Mycenean or Minoan civilization leads to the suggestion, for the first time so far as it is known, that they were akin to these peoples, possibly an offshoot from them. A discussion of their origin, however, is

not the purpose of this article. We are, at the present time, interested in it in-so-far as striking similarities are noted between their methods of burial and those of the Egyptians, the subject of our last inquiry.

Whoever the Etruscans were, and from whatsoever part of the East they came, certain it is that they attained a very high grade of civilization and lost their power about the time usually ascribed to the foundation of Rome, the middle of the VIII century before Christ. And while it is true that up to the present time their origin is obscure and the remains of their language are undecipherable, yet the world is by no manner of means in ignorance of the character of this people that occupied a large part of Italy for two or three centuries. Excavations upon the sites of many of their more important cities and particularly the discovery of many of their cemeteries has brought to light a vast number of objects in gold, silver, bronze, clay, etc. that speak volumes for the skill and artistic sense of those who made or used them.

Tombs in Etruria as in Egypt, have produced rich stores of objects in the precious as well as the baser metals which are stored in many museums of Europe. The Etruscan museum in Florence, Italy, has the finest and most complete collection. It is doubtful whether 10 per cent of the visitors to Florence get inside this museum and in fact a visit to such a collection without an interpreter might well seem of little interest or value to the ordinary tourist. With an interpreter, and fortunately it is not necessary to visit the museums of Europe without one, such a visit becomes a revelation of the true value of the objects carefully displayed there.

The interpretation of some of these and similar objects in other museums is the purpose of the present paper.

The Etruscans believed in a future life, but did not attempt to preserve the body as did the Egyptians. Their thought with reference to the "ka," or double was not the same, and climatic reasons forbade such treatment of the dead. Cremation was the common method practised though not the only one, and the ashes were placed in ash urns. These in turn were put inside other and larger jars and buried, or set up on shelves in the rock-cut tombs. They believed that the soul, as we must call it, needed an abiding place and sought to be with the ashes of the body it had formerly occupied.

Exactly as the Egyptians made sarcophagi resembling houses for the mummies of their dead, so the Etruscans said within themselves that if the body when inhabited by its soul had need of a house so the soul apart from the body has a like need and they made the first urns like the huts they then lived in. These hut-urns (Fig. 1) as they have always been called, are among the earliest and most interesting of terra-cotta vases. They are round or oval in shape, and about 15 to 18 in. high, with a diameter slightly less. They exactly represent the houses of the early Italic people. They consisted of the rounded part of the body of the vase together with a gable-shaped roof. The single door was closed with a movable piece of clay and fastened in by means of a small bar of wood, metal or bone. The houses themselves were small round or oval huts, wigwam-like, made by placing in the ground slender poles and filling the space between with

FIG. 2. ETRUSCAN JARS FOR ASHES. SUPPOSED TO REPRESENT THE BODY

woven reeds. Other slender poles were put over the top like rafters and the space between was carefully covered with thatch, the ends of the poles being allowed to project out far from the level of the roof. Poles tied in pairs were then laid over the thatch, one on each side of the ridge-pole to hold the straw in place.

The ashes of the dead were placed directly in these hut-urns, at first, and the urns themselves were commonly put within large dolia, or heavy stone jars. All might then be put into well-like tombs, called pozzo tombs, and the top carefully covered with a stone. Sometimes the hut urn was placed in the tomb without the outer jar. Again, these well-like tombs were often made by placing cylinders of clay, 20 in. to 30 in. in diameter, one above the other which then became the lining of the well. The ash urn was deposited at the bottom. Small notches, just large enough to insert hand or foot, were left so that it was possible to enter or leave the tomb as on a ladder.

As time went on, the people reasoned upon these matters and said to themselves that when they were alive the soul lived in a body and the body lived within a house. Why then should not the ashes be placed within a body-like receptacle first and that put into a house-like tomb? The construction of the terra-cotta "body" for the ashes seems to have caused some trouble at first. We find that a rather simple jar was used (Fig. 2) which could be said to resemble a human body only by the active use of the imagination. These jars are about 18 in. to 20 in. high and 8 in. to 10 in. in diameter in the center. This diameter diminished gradually from

FIG. 3. ETRUSCAN BURIAL JAR WITH HELMET LID

the center downwards; toward the top it was reduced considerably all at once so that a shoulder was left. The top and bottom are of about the same diameter, some 4 in. or 5 in. Upon the shoulder is to be found a single loop-handle. This is put on to assist in handling the jar with seemingly no thought, at first, of representing human arms. These jars are of black or red clay and are generally ornamented by incised lines in simple geometric figures.

No attempt was made to represent the human head in the cover but instead shallow, saucer-like bowls with one ring handle were turned upside down to serve as a covering. This seems clear from the fact that many examples have been found where, instead of using this kind of a cover, well

FIG. 4. ETRUSCAN BURIAL JAR WITH HANDLES IN PLACE OF HUMAN ARMS

fashioned helmets constructed of either clay or bronze were used. These were shaped so as to fit down over the "neck" of the body. Without doubt such jars contained the ashes of soldiers (Fig. 3).

While these bowl-shaped "bodies" with their saucer-like "heads" have been found in large numbers, it is apparent that they did not satisfy the artistic sense of this ancient people. They saw that improvements could be made in both parts. Real heads of clay seem to have been the first step. A head is fashioned with a neck which is slightly larger than the neck at the top of the body so that it will slip over easily and stand firm.

The bodies now take a different shape, resembling more a Greek amphora with two jug handles, or loops. These are found toward the top of the jars. The line of greatest diameter has been lifted above the middle of the jar and the handles are placed at that point. Two are almost always found now, which take the place of, though they do not really represent human arms (Fig. 4). So unsatisfactory do these appear that they first

FIG. 5. ETRUSCAN BURIAL JAR WITH ARMS AND HANDS IN LOW RELIEF AND NO LOOP HANDLES

attempt to represent real arms and hands by marking them out in very low relief on the body of the vase, with fingers outspread upon the breast. Sometimes this is done by continuing the lower part of the loop handle of the vase, where it joins the body, into fingers. Or, leaving the loop handles as such, arms and hands in low relief are added also. Rarely, as is shown in figure 5, no loop handles appear at all, but arms and hands in relief extend almost full length of the jar from the shoulder, which, in this instance, is made to resemble the human shoulder more than is usually the case.

A further step, and one showing much advance, is to make round arms from the elbow, in separate pieces, and fasten them to the ring handles of the vase by rivets of bronze (Fig. 6). The man now has real arms and hands, in the round, which seem more serviceable as they extend out from his body. The upper arm from shoulder to elbow is almost always represented by the vase handles proper. A striking exception to this custom is shown in figure 7. The jar, on the right, represents a soldier. No helmet is worn but the right hand grasps a spear handle. With the left he holds a shield. The small flange-like projection on the left side is a shield

and the hand is beneath it as if passed through a strap on the inside of the shield. Here the right arm is without joint but extends stiffly from the body. The row of knobs about the center of the jar indicates a coat of mail. The features of this warrior are well worked out and the hair imitates the style used in bronze work.

FIG. 6. ETRUSCAN BURIAL JAR WITH SEPARATE ARMS FASTENED TO THE RING HANDLES

The changes that take place in the head are most interesting. They are made about two-thirds life size and undoubtedly are always portraits. Eyes are generally fashioned simply in the clay, with holes to indicate the

pupil, as in Fig. 5; sometimes they are made by inserting into the clay smooth pebbles. Individuality as expressed in cheek, chin, eyes, forehead, hair and beard is clearly, though crudely at times, brought out. Side whiskers are fashioned in clay and attached, and one may stand in this portrait gallery of the ancients and pick out a Gladstone or other worthy without a too violent use of the imagination. Women are indicated by the use of ear-rings, of bronze and by the representations of breasts.

Nearly all of these figures—may we call them the beginnings of statues? —are made in clay. A few have been found of bronze and the features in these are far cruder. The bronze is merely "pinched up" as it were a little

FIG. 7. ETRUSCAN BURIAL JARS WITH REAL ARMS

to form mouth, nose and ears. No attempt is made to fashion the lower part of the body. They stood simply on the bottom of the jar, no lower limbs and feet were attempted at all.

So these bodies for the souls were placed on shelves in the rock-cut tombs. These tombs themselves, often of considerable size, are fashioned like a house with door and ceiling; with wall decorations and furniture. The dead man's soul now has a body to live in and the body has a house to occupy. As with the "ka" of the Egyptians there was no difficulty for the soul to flit in and out at will. Solid walls of stone or clay were no barrier. And yet just as the Egyptian sarcophagi always show the two

eyes as an entrance for the "ka," so the heads of these jars always have a perforation. This undoubtedly was made for the escape of the effluvium of the ashes, but we may well believe that it was also intended for the entrance and exit of the soul as it desired to flit about either within or without the tomb-chamber or in the world above.

But now it occurs to these people that while the soul has a body to dwell in and the body has a house yet to be compelled to stand throughout all eternity is a serious matter. If only these bodies could sit down how much more comfortable they would be. With the thought comes the making of a chair. Splendid, comfortable arm chairs are fashioned, in clay unless the body is bronze when the chair too is made of that material. (Figs. 4, 6 and 7). In these the same jars that we have been thinking of and describing are stood, but they are now thought of as sitting down and greater comfort is enjoyed. Dignity and position of power within the state

FIG. 8. ETRUSCAN BURIAL JAR REPRESENTING A MAN AND HIS WIFE

is probably marked by the additional comfort and elegance of the chair. And then, as was natural, it occurred to them that to sit always becomes tiresome. If they could only recline, the nights and days of eternity would not be so hard to endure. And with this thought come couches with thick soft mattresses and cushions upon which they may recline with comfort. Only one thing seems now to be lacking and that is company and when husband and wife are placed on the same soft cushions and before them is put a table with toilet articles the greatest comfort possible seems to have been secured. (Figs. 8 and 9).

Perhaps this, too, was the process by which they changed from cremation to inhumation, although it is impossible to say that one method of

FIG. 9. ETRUSCAN SARCOPHAGUS WITH FIGURE OF LARTHIA SEIANTI

disposal of the dead was earlier than another. The ancients themselves used to discuss which was the older method. Both practises are found side by side, notably in the primitive burying ground found in the Forum at Rome.

There are many ash urns of a later date than these described which are made like small rectangular sarcophagi and almost without exception reclining figures are represented upon the covers. These are frequently made of alabaster, and reliefs on the front picturing hunting scenes, battles, etc. are common. Bright colored paints are frequently used on these reliefs and the death angel with the mallet, his symbol, is frequently found conducting the soul to the lower regions.

Within the rock cut tomb-chambers elaborate furniture was placed consisting of chairs and many utensils of clay and bronze. Upon the walls were painted in bright colors banquet scenes which, as on the tomb-walls in Egypt, included not only the banquet itself but also the preparation of the feast in the kitchen and the larder.

These funeral vases that have been described are commonly called "Canopic vases" as they are similar to vases used by the Egyptians which were wrongly so-called from Canopus, a city in the Delta. When the Egyptians prepared the bodies of their dead for embalming they took out the viscera and enclosed them in four jars, each dedicated to a separate god, and each jar having as a cover a head of the god to which it was dedicated. One had a human head, one a head of an ape, one of a jackal, and

the fourth of a falcon. The similarity between these face jars of the Etruscans and the "Canopic vases" of Egypt has given the same name to both. That there was an influence exerted by the Egyptians upon these people in their eastern home before they migrated into Italy seems probable. This has been noted before. The marked difference between the two peoples in the matter of the disposal of the dead, as has been remarked, is largely due to climatic reasons. That the Etruscans believed in a future existence of their dead has been clearly proven. More details, as for instance those pertaining to prayers and formulæ, may be ascertained when the key to their language is discovered.

Unfortunately the remains of their language are very scanty, indeed, and our future knowledge of this more or less mysterious people may possibly have to come from further excavations in their city sites and cemeteries as in the past.

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Rome, Italy.

THE ANCIENT CORNISH SERPENT DIVINITY OF THE SEA

IN A former paper read at a meeting of the Royal Institution of Cornwall, I gave a summary of the proofs of the existence of ancient serpent worship in western Britain. I showed that even in the primeval days of the palæolithic period, the early inhabitants of England who belonged to the Cro-Magnon race were serpent worshipers and that engravings carved on bone and horn in the caverns of western France of that remote time portrayed the great sea-serpent swimming in the midst of the waves, and represented sacrifices being offered to appease the wrath of the mighty serpent-divinity of the ocean. Coming to later times immediately preceding the dawn of history in Great Britain, I showed that the short dark pre-Celtic race in the west of Ireland were serpent worshipers and that the same veneration for serpents prevailed in prehistoric times in the Highlands of western Scotland and the Hebrides. The dark Silurian race in Wales were shown to be serpent worshipers, by the conflicts between the early Christian saints and serpents and dragons. In Devonshire the earliest tinners on Dartmoor were said to have fought with serpents, and traditions have been handed down of various localities in Dartmoor which were said to have been haunted by terrible dragons and serpents. In Cornwall also the same stories prevailed. The saints and heroes fought with dragons and serpents, and these legends could best be explained by considering them to be recollections of the conversion of serpent-worshiping priests, and the destruction of their strongholds and the overthrow of their idols.

I now wish to examine the evidence for a special sea-divinity worshiped in Cornwall, and to compare this evidence with similar facts gathered in various portions of Great Britain.

The worship of demons and goblins goes back to the remotest antiquity, and prevailed in Cornwall in very early days. The lanes, roads and moorlands were haunted by "Buccas," and I distinctly remember these stories of Buccas prowling about the lonely paths when I was a boy. From being applied to these goblins and demons, the term has in our days degenerated into a designation of a scare-crow, but its earliest signification is perfectly plain. All over Cornwall we find places named after these Buccas or goblins. Thus we have "The Bucca's Hill," "The Bucca's House," "The Bucca's Barrow," "The Bucca's Town" and many others could be found if searched for. Buccas (or goblins) in fact were everywhere feared in ancient Cornwall. Similar terms were used of demons and goblins elsewhere. In Scotland the Bucca is a water demon in the Hebrides,[1] and the highlands and lakes were, until recently, said to be haunted by goblins named Buccans, which possessed terrible power. At the present day the term Bucca is used by the natives of Ceylon to denote a demon. But whilst these minor demons were said to haunt the woods and moorlands of Cornwall, there was preëminently a mighty divinity which had its home in the sea and presided over the winds and waves of the ocean. In ancient times there seem to have been two supreme Buccas or divinities reverenced in ancient Cornwall. The first of these was named Bucca Gwidden which may be said to mean "The God of Light" or the benevolent divinity. The other was Bucca Dhu or "The God of Darkness" and was evidently the evil divinity, whose terrible wrath had to be propitiated and whose favor had to be secured by sacrifices.[2] The term Bucca Dhu was altered into Bucca Boo, which in later times became the popular name of this dreaded divinity. I well remember, when a boy, what was the popular idea of the Bucca Boo. It was a horrible monster that dwelt beneath the waters of the ocean and raised its body from time to time—like the great sea-serpent—to scare voyagers and fishermen. The Rev. W. S. Lach-Szyrma tells us that[3] the Bucca Boo stole the nets of the fishermen of Newlyn. Some of the Paul choir, however, so terrified him by singing hymns that he threw away the nets which were turned into stones. This story is probably a dim recollection of the conflicts between the early Christians and the worshipers of the ancient Cornish sea-god.

Now recent researches have proved that at the time of the Roman conquest the greatest of all the divinities worshiped in Britain was a sea-god or Lord of the Ocean, who had his home in the deep and who had special power over the winds and waves. The ancient Silurians at Lydney on the Severn worshiped this marine-divinity and they portrayed him seated on the waves surrounded by serpents and sea-monsters.[4] In Ireland he was worshiped under the name of Nudd and was called "The God of Darkness," which is exactly the same name as Bucca Dhu in Cornwall and Nud was the greatest divinity in Britain. Another name of this sea-god was Domnu, and Professor Rhys tells us that the dumnonii of Scotland and by

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[1]*The Dolmens of Ireland.* By W. C. Borlase, vol. iii, p. 911.

[2]*Traditions and Hearthside Stories of West Cornwall.* By William Bottrell. 2nd series, p. 246. See also *Cornish Feasts and Folk Lore.* By M. A. Courtney, p. 129.

[3]*A Church History of Cornwall*, p. 2.

[4]See *The Hibbert Lectures* for 1886. By Professor Rhys. Cheap edition, p. 126.

the Servern were called after the name of this ocean-divinity.[5] We now bring this evidence into Cornwall. Mr. W. C. Borlase says "The Dumnonion Akron in Cornwall (*i.e.*, the lizard) and the early name of the Dumnonii in that peninsula, may mark an early settlement of the people who bore this sea-god's name.[6] Professor Rhys also tells us that this sea-god was the chief divinity of the Silurians and we know that these dark-haired and swarthy Silurians had settlements in Cornwall at the time of the Roman conquest. From all this it is clear that when the Roman armies entered Britain the adoration of the mighty sea-god prevailed not only in many portions of our country but was the principal form of worship in Cornwall.

What form was this terrible sea-god supposed to assume? My own remembrances in my boyish days picture it with the head of a man and with a mighty body of no definite form hidden deep beneath the waters. In Scotland the Rev. J. F. Campbell tells us that a mighty serpent with the attributes of a sea-god was believed to exist in olden days by the inhabitants of the Western Highlands and the Hebrides.[7] Even in the present time the fishermen in the Hebrides have the greatest horror of the eel and believe it to be a descendant of the serpent that tempted Eve in the Garden of Eden.[8] Here undoubtedly is a dim recollection of a mighty and terrible ocean-divinity which had the form of a serpent and had to be propitiated by sacrifices. Another evidence of this is found in the character of the mermaids, the superstitions relating to whom seem not to be correctly understood. At first there seems to be little connection between a gigantic sea-serpent and a creature half woman and half fish with a form such as we see carved on the end of one of the bench-ends in Tennor church. Nevertheless such a connection certainly exists. The Babylonian Dragon of Chaos was represented on the Chaldean tablets with the body of a woman terminating in the coils of two serpents.[9] The Rev. S. Baring-Gould refers to the curious water-fairy Melusina,[10] the legend of whom is preserved in southern France. This was the chief fairy in France and was half a woman and half a serpent. Mr. T. Crofton Croker tells us,[11] that the Irish word Merrow (or Mornach) means both a mermaid and a sea-monster. In the same work we read that Pontoppidan's sea-serpent had a mermaid companion and that in A.D. 887 a mermaid 195 ft. long was cast ashore on the north coast of Scotland. In one of his Scottish rambles Sir Walter Scott was fortunate enough to meet a man who had seen a mermaid. According to this individual, the mermaid was a long serpent with a mane and red fiery eyes.[12] This is probably a confused recollection of still more ancient stories. Barry Cornwall has put the same idea into poetry in the words

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[5]*Ibid.*, p. 597.
[6]*The Dolmens of Ireland*, vol. iii, p. 771.
[7]*Popular Tales of the West Highlands*, vol. ii, p. 386, vol. iv, p. 308.
[8]See Miss Gordon Cummings' *In the Hebrides*, pp. 366-7.
[9]*Babylonian Influence on the Bible*, by Rev. A. Smythe Palmer, p. 23.
[10]*Curious Myths of the Middle Ages*, pp. 470, 496.
[11]*Fairy Legends and Traditions of the South of Ireland*, edited with notes by T. Wright, p. 188.
[12]*The Pirate.* Notes to chap. 11.

The sea-beast he tosseth his foaming mane;
He bellows aloud to the misty sky.[13]

In the Island of St. Agnes in the Scilly Isles is the now-filled up well of St. Waurna. Formerly at this sacred spot prayers were made to the saint whose name the well bears that the winds and waves might bring a "good wreck" to the inhabitants.[14] Tradition brings St. Waurna from Ireland, but nothing further is known and the fact that the saint was supposed to rule over the winds and storms of the ocean shows at once that some great superhuman person was indicated. The worship of wells in Cornwall is evidently a relic of pre-Christian times and in later days it was associated with the names of Christian saints, some of the latter being called by the name of the ancient divinity. Thus the name of St. Waurna is singularly like Waruna the great Sanskrit god of the ocean who presided over the winds and waves. These points seem certainly to connect Waurna with the great sea-god of ancient Britain Domnu, and with the Cornish ocean-divinity Bucca Dhu. There is another fact that supports this conclusion. The ancient Silurians—a pre-Celtic race—worshiped the mighty sea-god Domnu and this race was spread over Britain before the arrival of the Celts. The Scilly Isles long ago bore the name of the Silurian Islands, evidently from the Silures who had made them their place of refuge, and whose relics may be found in the sepulchral barrows and so-called Druidical remains which exist in various parts of Scilly.

Sacrifices and offerings to the supreme god of the sea were common everywhere in ancient times. They were offered up in many places in Great Britain and traces of them can even now be found in Cornwall. The occasion of offering these sacrifices was the desire to have a successful voyage or a prosperous fishing season. At the same time the wish to appease the terrible lord of the ocean and to stand high in his favor should not be lost sight of. These sacrifices were frequently of human beings. In ancient history maidens were often said to be chained to a rock to be devoured by a sea-monster, and were frequently delivered by the aid of some hero who slew the monster. The story of the deliverance of Andromeda by Perseus and of Hesione by Hercules are illustrations of this idea. The maiden was devoted in sacrifice to the great serpent-god or dragon of the sea and the priest of the serpent-god who was about to kill her was, in turn, slain by the warrior, so that the death of the priest of the serpent was in after times looked upon as the destruction of the monster itself. I am convinced that this is the explanation of the many ancient stories which relate that maidens devoted to be devoured by a sea-monster were delivered by a warrior who slew the monster. Now, in Scotland in ancient times similar stories such as the deliverance of Andromeda by Perseus were believed. Maidens were said to have been constantly offered to a great sea-dragon which was devastating the land,[15] and were rescued by some brave man who slew the monster.

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[13]*English Songs*, 1844, p. 128.
[14]*Cornish Feasts and Folk Lore*, by M. A. Courtney, p. 119.
[15]These stories are given at length in *Popular Tales of the West Highlands* by Rev. J. F. Campbell, vol. i, pp. 77, 97, 101.

The Kelpie or water-demon of Scotland affords another illustration of the truth of this theory. Every mountain-lake had its Kelpie which lived beneath the waters and the same terrible sprite haunted the rivers and the seashore. When a victim was required by the Kelpie, the demon sang a plaintive wailing song and someone was sure soon to be drowned. The screaming of the Kelpie near the sea-shore was also a terrible indication that a wreck with loss of life was soon to occur. Sir Walter Scott has preserved this superstition in the words:

> The fishers have heard the Water-Sprite,
> Whose screams forbode that death is nigh.

Here it seems to me we have a dim recollection of a sacrifice offered ages ago to a water-god and a death-song sung by the priest before the human victim was selected. The memory of the event was retained in a confused manner long after the introduction of Christianity into Britain. At this very day in the island of Amergos, one of the Cyclades in the Grecian archipelago, the inhabitants believe that there is an evil spirit which rises from the sea and carries off children, a special charm being used for their restoration.[16] This is another recollection of children being devoted to the sea-god in distant ages. The singing of the mermaid is one of her chief characteristics; and it generally ends in the death of those who are led by it to meet her on the shore. Hence those places where the mermaid sang were specially to be avoided. The origin of the mermaid legends does not seem to have received the attention that it deserves, and the figures of the Syrian sea-goddess Atargatis, which was half a woman and half a fish, whose worship was derived from Babylon, give us a hint as to the origin of the stories of the mermaids and the original character of their position. I believe the later stories originated from the priestesses of the sea-god, who had their sacred places in islands and on the sea-shore. They controlled the winds and waves and offerings were made to them in order that they might procure favorable weather. These priestesses abounded in Lapland, where the sea-god was worshiped under the form of a gigantic serpent.

In later times when human sacrifices began to be discontinued, animals were devoted to the sea-god, and even simpler offerings were given to him. Martin tells us[17] that in the Hebrides in the XVII century on Hallow-e'en one of the inhabitants waded into the sea in the presence of a crowd of sympathizers and poured a cup of ale into the water as a libation to the sea-god to send them plenty of sea-weed. After the libation they all went to the church and then spent the rest of the night at home and in the fields feasting and dancing. In the present day a similar ceremony prevails amongst the wild black inhabitants of the Philippine Islands called Tagbanuas. M. Marche informs us[18] that at midnight on a regular day each year a sacrifice is offered to *Poco*, the sea-god. A priest in the presence of a crowd of spectators wades into the sea and launches into the waves a little raft containing fruits, vegetables and cooked poultry. If the raft is carried out to

[16] Mr. Theodore Bent in *Macmillan's Magazine*, July 1884, p. 200.
[17] *Description of the Western Isles*, p. 29.
[18] *Luçon et Palouan*, p. 322.

sea the omen is favorable, but if it is cast up on the shore universal consternation prevails, it being concluded that the god refuses the peoples' offerings and will speedily punish his worshipers.

Now to apply all this to Cornwall. I am not acquainted with any *direct* evidence that human sacrifices were offered up in our County to the great water-god Bucca Boo (*i.e.*, Bucca Dhu). On the other hand *indirect* evidence does not appear to be entirely wanting. One particular story is well known in Cornwall on the sea-coasts. I believe it used to be repeated in the neighborhood of St. Agnes. In the calm of the night a voice is heard from the sea exclaiming, "The time is come, but not the man!" This is repeated several times. Then a man suddenly appears on the shore, rushes into the sea and is swallowed up in the waves. Here we have the sea calling for a victim and never calling in vain. The story is a dim recollection of a sacrifice offered in Cornwall on the shore to the sea-god. The time was come. The priest was ready and he pronounced to the assembled multitude the words, "The time is come but the man is not come." The victim was then chosen by lot, killed and his body was cast into the sea as an offering to the awful god of darkness who had his dwelling in the depths of the ocean. Remarkable confirmation of this view comes from Wales. Among the lonely Welsh mountains and by the shores of the Welsh lakes, Professor Rhys tells us,[19] an exactly similar story is related. The Welsh peasants say that in the darkness of the night a voice cries from the depths of certain lakes "The hour is come, but not the man." A human figure then appears, rushes into the lake and sinks into the water. This is exactly the same story as our Cornish legend and it is the Spirit of the Lake calling for a sacrifice, and is clearly a recollection of human sacrifices which were offered to the water-god. A mighty monster called the Afanc dwells beneath the waters of the lakes and the same idea precisely prevails in some parts of Ireland.

We can gather further that in Cornwall in far distant days human sacrifices were offered to the mighty sea-divinity by the manner in which the mermaids constantly drowned, or in some other way, killed men. All around our Cornish coasts mermaids by their song entrapped men and then drowned them, I may merely mention the mermaids which were connected with Tennor and Perranporth as instances. The singing of the mermaid is a recollection of the death-song of the priestesses of the sea-god, which they sang before killing the victim. In Italy it was believed that the mermaids swallowed men,—an idea which may have been a dim recollection of the custom of throwing the victim alive into the sea and thus offering him as a sacrifice to the sea-god. Possibly the casting of Jonah into the sea was quite in harmony with the religious rites which had been witnessed by the Phœnician sailors. In the early part of the last century the beach of Porthminster near St. Ives was said to be the favorite haunt of mermaids, and children were specially warned not to approach it alone. The wailing song of the mermaids is spoken of even now by some old St. Ives fishermen and was, when heard, an omen of terror. The same wailing of the mermaid

[19] *Celtic Mythology*, vol. 1, p. 244.

on the Doom Bar at Padstow foretold disaster and was the sea calling for a victim. The Irish word Merrow, which means both mermaid and sea-monster, occurs in Cornwall as a name of a locality.[21] That the priestesses of the sea-god offered these sacrifices to the divinity of the ocean seems to me to be undoubted. In the holy ilses of Amnis and Sena near the mouth of the Loire and Brest there were in ancient days priestesses who offered up human sacrifices and controlled the winds and waves, exactly as our Cornish mermaids were supposed to do. In Mont St. Michel in Brittany also these priestesses had power over the elements. That the stories relating to our Cornish mermaids refer to these priestesses I do not doubt.

When milder views prevailed, human sacrifices to the sea-god were discontinued, but animals were still offered up to the terrible divinity. Little more than 100 years ago a calf was sacrificed in Cornwall and at the same time a bullock was in Wales often thrown into the sea as a sacrifice to the devil.[22] Similar sacrifices were offered on the Scotch mountains and islands to Mourie, a recollection of the mighty divinity so universally worshiped in ancient times.

The idea of the sea calling for a victim used to be commonly entertained in many places in Cornwall. It was expressed in the words "Bucca is calling" or sometimes "Clodgy is calling." Miss Courtney tells us[23] that years ago there was a marsh between Penzance and Newlyn, now covered by the sea, known to the old people as the "Clodgy;" when the sea moaned there they said, "Clodgy is calling for rain." Sometimes at the present day it is Bucca is calling. All this is the well known calling for a victim, which was signified by the cry of the Kelpie, the scream of the Water Sprite and the song of the Mermaid. It would be interesting to examine the connection which exists between Bucca and Clodgy in other parts of Cornwall. The existence of so-called Picts Houses at Clodgy Point, near St. Ives, may have a significance which has up to the present escaped our Cornish archæologists.

Other offerings of a simpler character were in ancient times in Cornwall offered to the Bucca Boo. Thus it was the custom of the fishermen of Penzance and the neighborhood to leave offerings of fish on the beach for the Bucca Boo and Miss Courtney in addition to this has drawn attention to the fact that in harvest a piece of bread was thrown over the left shoulder and a few drops of beer spilt on the ground as an offering to the terrible Bucca[24] (this was probably Bucca Gwidden). The story of the Bucca Boo stealing the nets of the Newlyn fishermen and being pursued by them over the downs until the demon threw away the nets is well known. The Rev. W. S. Lach-Szyrma also tells us[25] that near Penzance was a tree sacred to the Bucca Boo, of which it was said that anyone who harmed it would be changed into an animal. Notwithstanding this prediction, a Newlyn fisherman cut the tree down and was none the worse for his achievement.

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[21] Near the shore of Gerrans Bay and near Tchidy.
[22] *In the Hebrides*, by C. F. Gordon Cumming, p. 195.
[23] *Cornish Feasts and Folk Lore*, pp. 84, 85.
[24] *Ibid.*, p. 129.
[25] *A Church History of Cornwall*, p. 2.

The general characteristics of the great Cornish sea-divinity the Bucca Boo, are thus summed up by Mr. J. Henry Harris:—"A spirit of undefined but terrible powers for good and evil dwelt in ancient times in Cornish coves. The 'Bucca' was on sea what Piskey was on land only more terrible and held the fishers in the hollow of his hand. They paid him toll, and when in the silence of the night a Bucca's voice was heard calling a man by his name, he trembled and paled with fear, for he knew he was a doomed man. Bucca had power over the winds and waves, and could bring good or bad luck to the fisher so he was lord of the fishes also.

"In the olden times the Church tried conclusions with Bucca and failed. The good Saint Waurna promised to send wrecks and good luck to the men on the coast if they would pray to him, and lay gifts upon the altar instead of throwing them on the sands to Bucca; but the name of the Saint did not travel far, and never reached our cove. The good Saint Anthony made the fishes sing praises to God, but the powers of Bucca remained the same and were so firmly believed in that they may be traced to this day.

"It was Bucca who would have fishers silent at sea, if a man whistles he might raise a storm, if he sang he would catch nothing. The cove-men delight to tune up on land, but on the water are as quiet as dormice. The old Bucca was not a poet, and so our deep-sea fishermen have no songs. In this the fishers and sailors differ; the latter possess songs and 'shanties' composed of the passion and license of all lands, but the fisher is dumb. When the fishers 'tuney up a bit' on the cliffs, they are fond of something stirring, and will 'pitch the last new berying tune,' or something warm from the last 'revival,' for the atmosphere in which they dwell is religious. During the long hours of drifting at night, the men lie quiet in their cuddies, or hang about the decks until it is time to draw in their nets. The shadow of Bucca is still felt, or else the pursuit of a silent prey silently in the deep sea is wanting in inspiration; and the fact is that during the centuries our fishers have not hammered out a fisher song worthy of the theme. A survival of paganism has been allowed to die out. At the commencement of the spring fishing, bonfires were in olden times lighted, and there was feasting and wrestling and much rejoicing. In Brittany the Church adopted the custom and made it Christian; but in our Cove the boats go and come in the sunlight and shadow, in the tempest and calm, without benediction, and there is no special thanksgiving at any time for the abundant harvests of the sea. There are old men who say things went better when they were young, and that Bucca was very good to them."[26]

This extract sums up all the traditions that Mr. Harris was able to gather about the Bucca Boo, and—as we before noticed—particular stress is laid on the voice of the Bucca calling from the sea, and claiming a victim, a recollection of the human sacrifices to the sea-god. In Christian times the Bucca Boo was naturally superseded by Satan, who was supposed to have his home in the deep. The blending of the two beliefs can be traced in many superstitions of sailors, some of which have survived to the present day. The awful "Davey Jones" of sailors was simply Satan, who was en-

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[26]*Our Cove. Stories from a Cornish Fishing Village,* by J. Henry Harris, pp. 19-22.

grafted upon his heathen predecessor, Bucca Boo. The name "Old Nick" for Satan has a similar origin. It is derived from the Scandinavian water-demon or water-wraith, the same as the Scotch Kelpie. Nekkan or Nikken is the evil spirit of the Scandinavians. The Nicks in the north of Europe inhabited lakes and rivers, exactly in the same ways as the Kelpies in Scotland were supposed to do.[27] The mighty serpent of the Scandinavians, the Midgarsormen, the enemy of the Norse gods and the personification of all evil was also called Nidhögg[28] and was—

> That sea-snake tremendous curled,
> Whose monstrous circle girds the world.

The same name may be traced in Scotland in the malignant goblin the Nickneven.

In Cornwall there are recollections of customs which in lonely parts of our County still survive. Thus in former days in Cornwall the night before Shrove Tuesday was called Nicky Nan night when boys and young men representing evil spirits prowled about and did all kinds of deeds of darkness.[29]

The underground dwellings in Cornwall such as those at Pendeen, Bolleit, Boscaswell and Chapel Enny would seem to supply similar evidence. They remarkably resemble those constructed by the Lapps in the past and in the present. The heathen Lapps worshiped a vast serpent and had their priestesses who professed to control the winds and waves.[30] If our underground Cornish dwellings prove that a short Mongolian race akin to the Lapps lived in Cornwall, then there probably existed here the worship of a mighty serpent-divinity in the sea. This primitive race handed down the belief in the sea-god to our Celtic forefathers in the shape of the tradition of the Bucca Boo, exactly as the ancestors of the present Lapps passed on their belief in the serpent-divinity of the ocean to the Scandinavians and Norsemen who overcame them.

Whence came this worship of the serpent-divinity of the sea, how was it introduced into Britain? That it was introduced into Cornwall and the neighboring parts of Britain by the Celts is, I think, highly improbable It has been stated by a high authority on folklore that the Celts were not serpent worshipers. I agree with this statement in the main, but I believe that the Gaelic Celts adopted into their worship the veneration of the serpent, which they found practiced here by the pre-Celtic tribes, on their arrival. Nor is it possible to assign a Phœnician origin to serpent worship in Britain. Certainly the Phœnicians believed in the existence of a vast serpent or dragon in the sea, but their visits to Britain only affected a very small part of our island. They never reached the north of Scotland, the Hebrides and the wilder parts of Western Ireland, and it was in these very parts of Britain that the sea-dragons were specially venerated. More-

[27] Brewer's *Dictionary of Phrase and Fable*, p. 614.
[28] *Ibid.*, p. 615.
[29] *Natural History of Polperro*, by T. Couch, p. 151. Miss Courtney says that a similar custom prevailed in the Scilly Isles.
[30] *The Dolmens of Ireland*, vol. iii, p. 1160.

over, when we find that in the remote regions of northern Europe and amidst the inland districts of North America which never came under Phœnician influence the same belief in the great serpent-divinity prevailed, it is quite clear that we must look elsewhere for the origin of this worship. Another theory is that it arose from the presence of a veritable sea-serpent which in prehistoric times lived in the sea—although it has long disappeared—and the appearances of which filled our remote ancestors with such terror that they venerated it with the utmost dread and awe. This theory needs little consideration as the existence of the sea-serpent at all is too problematical a subject for discussion. I feel little doubt myself that the great serpent-divinity of northern Europe is similar to the mighty dragon of the ocean which was such a prominent object in Babylon. Recent discoveries have proved how much the religions not only of the East but also of Europe were influenced by Babylon. The ancient world was deeply indebted to Babylon with reference to the arts of civilization and the same may be said with respect to many religious beliefs.

The ancient Babylonians regarded the ocean with the greatest awe. They looked upon it as the very personification of evil and of hell and in the roarings of its waves they seemed to hear the threatenings of the power of darkness. They regarded the sea also as the home and under the dominion of a mighty being, the representation of evil, whom they called Tiamat. This overwhelming power of evil was represented as a mighty serpent or dragon, which appears everywhere in Babylonian mythology, and to which the most awestricken worship was rendered. It was the dragon which is described in the Apocrypha (in the story of Bel and the Dragon) which all the Babylonians worshiped. Another name given by the Babylonians to this mighty sea-divinity was "the huge 7-headed serpent who pounds the waves of the sea," and the monster was also called "the enemy of the gods." In the old Babylonian belief it was this dragon of the sea that seduced the first human beings from their innocence and was the enemy of mankind. The Hebrew prophets continually personify Babylon under the figure of a mighty dragon or serpent of the sea. Isaiah speaking of the destruction of Babylon most exactly describes the vast sea dragon or serpent which was venerated by the Babylonians in the following words: "In that day the Lord with his sore and great and strong sword shall punish Leviathan the piercing serpent, even Leviathan that crooked serpent, and He shall slay the dragon that is in the sea."[31] No words could more precisely portray than these the awful divinity of the Babylonians dwelling in the depths of the ocean. In another place the same prophet speaks of the dragon being wounded by Jehovah,[32] and it is strange to find that there was a "dragon's well" at Jerusalem.[33] Very striking are the words of the prophet Amos in which he declares that there is a great serpent at the bottom of the sea which shall devour the wicked.[34] A further link in the chain of evidence is found in the representations of mermaids and mermen in the Babylonian

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[31]*Isaiah*, xxvii, 1.
[32]*Ibid.*, li, 9.
[33]*Nehemiah*, ii, 13.
[34]*Amos*, ix, 3.

and Assyrian sculptures. The well known figures half human and half fish appear again and again. The Syrian goddess Atargatis was half woman and half fish and appears to have been related to the Dagon of the Old Testament. She is represented (as Derceto) on an engraved stone from Babylon as a genuine mermaid with a woman's body and the tail of a fish and Diodorus Siculus expressly states that Dagon had the head of a woman and the body of a fish. The Phœnicians who dwelt originally in the districts bordering on Babylonia, held in early days beliefs similar to the religion of Babylon and when they migrated into Palestine carried these beliefs with them. From the Phœnicians the worship of the sea-dragon spread into western lands and they may have brought it with them to Britain. The well known worship of the mighty dragon of the ocean by the Chinese and Japanese forms another branch of the subject. It is now held that there were strong connections in the past between ancient Babylonia and the earliest Chinese civilization and these influences may well also have influenced the early religious beliefs of ancient China. It is also striking to discover that a strong resemblance has been traced between the folklore of rural China and that of Cornwall and Brittany. Mr. Dennis who has been zealously studying the folklore of China for a long time has discovered that the Chinese possess a rich treasury of rural legends, myths and superstitions. Some of these are connected in a striking manner with our Cornish legends and, according to this talented writer, a remarkable similarity may be traced between the superstitions of a Chinese town and those of a Cornish village. From this similarity of folklore Mr. Dennis would conclude that there is community of origin between the Cornish and Chinese races. This, however, would refer probably not to the Celtic people of Cornwall, but to the pre-Celtic or Ivernian people, who inhabited our County before the Celts arrived. The worship of the serpent or dragon divinity of the sea both in Cornwall and China certainly forms a strange connection between the two countries.[35] The common origin of the civilization of Babylonia and ancient China is now maintained by many leading ethnologists and the relations established between the folklore and mythology of these countries and the serpent worship of ancient Britain is certainly a remarkable discovery.

As to the *race* that in Cornwall looked upon the sea as the home of the mighty serpent-god or dragon-divinity, I do not think the identification can be doubtful. Serpent worship at present exists in Turanian and Hamitic races, and it is amongst the people of these races that the sea is looked upon as symbolising the awful power of darkness and evil. It has been said by one of our best students of folklore that serpent worship was not a Celtic rite. This may be true of Celtic worship originally, but the Celts and other Aryans frequently borrowed the religious rites and notions of those they conquered. The invading Aryans borrowed from the low Turanian aborigines of India their animal and serpent worship, and engrafted these practices upon their purer faith. The Scandinavians adopted the serpent beliefs of the Finnic and Mongolic tribes that they con-

[35]See *Voyage aux Philippines* by Dr. J. Montano, pp. 7, 8.

quered, and the Semites in ancient Babylonia did the same thing. Similarly it is most probable that the Gaelic Celts who first entered Cornwall or Ireland as well as Western Scotland adopted the worship of the great dragon of the sea into their mythology. I believe that in pre-Celtic days the Ivernian or Pictish inhabitants of Cornwall adored two great divinities. The Spirit of Goodness and Light they venerated in the sun, to which they offered sacrifices and practiced ritual observances. This explains the traces of sun-worship and the adoration of fire, which we constantly find in our midst. In addition to the sun our Cornish ancestors adored a spirit of darkness and evil which had its abode in the depths of the ocean, and which they venerated under the form of a mighty sea-serpent or dragon.

While we find this worship best set forth in the myths and legends of ancient Babylonia, it would be a mistake to suppose that our Cornish ancestors imported their worship direct from Babylon. The earliest inhabitants both in western Europe and in Babylonia were of the Turanian or Mongolian race, and they carried the primitive traditions of this race into the lands in which they ultimately settled. The original home of this Turanian race lay to the south of the Caspian Sea, and from this center they wandered in all directions carrying with them their belief in a mighty dragon of evil residing beneath the waters. One branch settled in Babylonia, but another roamed far away northwards and westwards, overrunning Europe and ultimately settling in Britain. These early wanderers in the neolithic age brought the worship of the mighty sea-dragon into Britain, and long afterwards the Gaelic Celts adopted it from their Turanian predecessors in the wilder parts of Our Islands.

This is, I believe, the origin of many of our wild Cornish stories about the terror lurking in the depths of the sea, and it is earnestly to be hoped that these legends and traditions of our western peninsula may be collected and classified before they finally disappear.

D. Gath Whitley.

Cornwall, England.

HERBERT FLETCHER DE COU

DOCTOR HERBERT FLETCHER DE COU, a member of Richard Norton's exploring party in the Cyrenaica, was murdered by Arabs while excavating along the antique road near Cyrene on March 11. The party's Turkish guard of 60 men had recently been reduced to 10. But this does not account for De Cou's mishap, since the control of the Turkish authorities in the vilayet of Benghazi is as absolute as they care to make it, at all times. They will probably jail the young scholar's captors at once, with polite apologies to Secretary Knox, and the untoward incident will be officially closed with a platonic inquiry. In a few months the Ottoman governor will release the suspects again, with apologies for the inconvenience he has had to inflict. There

is an "American fort" near Dernah; but it has a century's growth of grass and brush on it. Great Britain has a vice-consul at Benghazi to help the Ottoman government suppress the slave trade. The United States is unrepresented on the Barbary Coast.

Classical scholars who knew De Cou and his scholarly capacities will regret him deeply. He graduated at Michigan in 1888, assisted Charles Waldstein to excavate the Argive Heraion in southern Greece, and has helped him edit the mass of material unearthed there. De Cou was Secretary of the American Schools of Classical Studies at Athens for several years. He knew the conditions of exploration in Greece and Turkey and Egypt well, and combined perfect fearlessness with a singularly gentle temper and address. He spoke Italian easily and Greek with elegance. Nobody possessed a keener knowledge of antique bronzes than Doctor De Cou.

Other countries find larger uses for such talents than ours does. De Cou was out of place at Chicago, where the Art Institute and the Field Museum together own perhaps 190 Egyptian, Greek, Etruscan and Roman bronzes.

Doctor Norton's gallant effort to follow up a British party's surface exploration of Cyrene, anciently the capital of Greek Africa, and environs, opened a splendid field for his talents and experience. According to information the writer obtained from native sources, 24 years ago, there are 30,000 Greek and Roman tombs around Cyrene, 20,000 of which were then still unopened. Smith and Porcher collected some of the British Museum's best things in the Cyrenaica.

Turkish notions of checking foreign espionage have blocked the efforts of scholars to explore the vilayet of Benghazi further. Tourists give it a wide berth. The writer reached Benghazi on a Turkish transport and left it by sailing vessel. Mr. Norton's firman to excavate there was itself a triumph. Tripoli and Benghazi are practically virgin territory. The late Sultan, however, helped to render the Cyrenaica more accessible to explorers by colonizing many Cretan Moslems there, who now maintain a livelier intercourse with Crete and Greece, being Greeks, than the Turkish and Arabic inhabitants could, or cared to. The prosecution of the Archæological Institute's work at Cyrene, Apollonia, Tokra, Tolmeitah and so forth, can bring nothing but advantage to the country and to science. Its abandonment at this jucture would wear the color of an American surrender, both to native eyes and Turkish.

ALFRED EMERSON.

The Art Institute, Chicago.

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NECROPOLIS AT BAHREIN, ON THE PERSIAN GULF.—The *Illustrated London News* not long ago published pictures of the necropolis of Bahrein on the Persian Gulf, where Captain Prideaux has been carrying on excavations for the Indian government. Some of the mounds are as much as 50 ft. high, while the majority range from 20 to 30 ft. There are usually two chambers in each mound, an upper and a lower.

UNIVERSITY OF NEBRASKA EXPLORATIONS OF LONG'S HILL. THE BURIAL MOUND CAN BE DISCERNED ABOVE THE UNMOVED LOESS BACK OF AND ABOVE THE LOWEST FIGURE BY ITS DISTINCTLY DARKER COLOR THAN THAT OF THE UNMOVED LOESS BENEATH

SCIENTIFIC "INACCURACIES" IN REPORTS AGAINST PROBABILITY OF GEOLOGICAL ANTIQUITY OF REMAINS OF NEBRASKA LOESS MAN CONSIDERED BY ITS DISCOVERER[1]

ANTHROPOLOGISTS will remember the conclusions of Dr. Ales Hrdlicka, the eminent assistant curator of anthropology of the United States National Museum in regard to Nebraska Loess Man. Dr. Hrdlicka, after an exhaustive review of the subject says:[2] "Referring particularly to the Nebraska 'loess man' the mind searches in vain for solid ground on which to base an estimate of more than moderate antiquity for the Gilder mound specimens. The evidence on the whole only strengthens the above conclusion that the existence on this continent of a man of distinctly primitive type and of exceptional geological antiquity has not yet been proved."

Dr. Hrdlicka's paper is so well known that it is unnecessary to reproduce it here.

At the time of the discovery of Nebraska Loess Man, or shortly thereafter, Dr. Henry B. Ward, at that time dean of the medical department of the University of Nebraska, visited the Bureau of Ethnology and acquainted its chief and the members of his staff then in Washington of the fact of the discovery of Loess Man and of the belief of Prof. E. H. Barbour of the Nebraska University that the bones were fossil, that they were post-glacial in time and that the type was primitive. On the return of Dr. Ward he told the writer as well as others that his announcement had been received with incredulity and argument against the possibility of antiquity. This visit of Dr. Ward to Washington was long prior to that of Dr. Hrdlicka to Nebraska.

Dr. Hrdlicka in company with Dr. Ward, Prof. Barbour and the writer visited Long's Hill near Florence, Nebraska, the latter part of January, 1907, at a time when the ground was partially covered with snow and when the faces of the excavation were frozen and any thorough examination was not easy. What is more Dr. Hrdlicka was there but a very short time—hardly half an hour—and made little attempt at accuracy of investigation, apparently ignoring all geological evidence. His work at the excavation seemed hasty and superficial.

In reading Dr. Hrdlicka's report the writer's attention was at once attracted to the many and persistent "inaccuracies" in its pages and I

[1] The following review has been prepared by me after repeated requests that I give my own views upon the matter of the probability of geological antiquity for the remains of Nebraska Loess Man. These requests seem to have placed the burden of proof on the discoverer of these remains as I had carefully refrained from venturing a personal opinion in all papers on the subject until any opinion I advanced could not be placed at the door of inexperience with geological conditions in this section. The review which follows has been prepared wholly with a view of correcting some of the inaccuracies in papers on the subject evidently prepared under circumstances which precluded careful scientific accuracy. For the two eminent gentlemen whose papers are quoted the writer has the warmest friendship. I believe my long-continued labors in this field enable me to discuss the questions involved entirely free from prejudice and with special regard for facts as I have found them.—ROBERT F. GILDER.

[2] Bulletin No. 33—Bureau American Ethnology—*Skeletal Remains Suggesting or Attributed to Early Man in North America.*

wrote the doctor calling his attention to one of the most glaring, receiving a reply in which he said it was due to hastiness of preparation—although the book was not issued for many months after his visit to Nebraska. No attempt has been made, so far as I am aware to correct any of these "inaccuracies" and the writer believes it devolves upon him to point out at least some of the more noticeable in his work on Nebraska Loess Man.

Page 69 (*Bulletin 33*) second paragraph from the last reads: ". . . The better preserved bones were collected and kept about Mr. Gilder's house until the question of possible geological antiquity of the deeper burials arose when they were transferred to the University of Nebraska at Lincoln."

The truth is the bones "were transferred to the University of Nebraska at Lincoln" on the advice of Dr. E. C. Henry of Omaha several weeks prior to the conclusion of their "geological antiquity" and they would have been transferred to Lincoln even before were it not for a telegram from New York City requesting that I retain them at my home for the inspection of Prof. Henry F. Osborn who was on his way to Nebraska for that purpose.

On page 75 second paragraph (*Bulletin 33*) is this sentence:

"It was plain, however, at no point had the baking progressed so far as to render the earth impervious to water."

Dr. Hrdlicka here refers to the "baked clay" area beneath which the primitive bones lay. Reference to a recent paper by the writer[a] shows the "inaccuracy" of the above quotation. Dr. Hrdlicka did not more than scratch the surface with my heavy grubbing hoe and pickax and could not, at the time of his visit, determine any question concerning the "baking" of the earth. I shall show later that the earth beneath the "baked clay" was decidedly "impervious to water."

On page 87, paragraph (a), (*Bulletin 33*) Dr. Hrdlicka writes: "Within a depth of 5 ft. or less the Gilder Mound contained the remains of apparently about a dozen bodies. They were male and female skeletons ranging in age from the infant to the senile subject. *Two or three of the skulls, with some accompanying bones, lay within two and one-half feet or less of the surface.*"

In a letter to Dr. Hrdlicka, written at his request, to be incorporated in his paper, the writer made no allusion to finding *human bones* "within two and one-half feet or less of the surface." The nearest to this will be found on reference to the letter referred to on pages 67–69 *Bulletin 33*, when I referred to finding the skull of a modern Indian child within 3 ft. of the surface of the mound. Again on page 88, second paragraph, second line is another reference to finding bones "two and one-half feet from the surface," and on the opposite page (89) in the thirteenth line is still another reference while on the same page in the first line of the first paragraph is further reference to "two and one-half feet." I cannot understand the emphasis and frequency of the use of this very apparent "inaccuracy."

On page 90, second paragraph, (*Bulletin 33*) Dr. Hrdlicka refers to the condition of the earth in regard to frost at the time of his visit in the

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[a] *Recent Excavations at Long's Hill, American Anthropologist*, Vol. X, No. 1, Jan.–March, 1908, p. 60.

CONDITION OF LONG'S HILL EXCAVATION AT THE TIME OF THE VISIT OF DR. HRDLICKA

middle of winter—an unusually severe one for Eastern Nebraska. He says: "The fire-hardening at one of the higher levels in the mound was not sufficient to keep out moisture, whose presence facilitates physical and chemical changes in inclosed bones. *At the time of our visit to the locality in January the earth was found to be frozen at a level lower than the baked layer*"—four and one-half feet.

The preceding statement by Dr. Hrdlicka was probably from memory as he made no written notes on the ground. It is true the earth was "frozen at a level lower than the baked layer" because of its exposed vertical surfaces inside the excavation which were deeper than the fired layer and were acted upon by frost the same as was the surface or horizontal exposure. But instead of there being 3 or 4 or more vertical feet of frost in the ground—as Dr. Hrdlicka conveys—there was less than 8 in. Accompanied by two assistants the Sunday following Dr. Hrdlicka's visit I made an excavation 90 ft. north of Long's Hill mound and found no frost below 7 in. from the horizontal surface. After a residence in Eastern Nebraska of over 20 years I can state that at no time has the leaf-covered wooded section in this vicinity been visited with cold so intense as to freeze the ground to a depth of 4 ft. The winter of 1909–10, probably the most severe of recent years, did not freeze the ground over 12 in. For several years past I have been persistent in archæological field research—winter as well as summer—with no intermission and during that time have encountered little difficulty from frozen ground.[4]

[4] An illustration showing that the forest section in the vicinity of Omaha in which Long's Hill lies is not acted upon by frost as might be supposed from Dr. Hrdlicka's statement will be found in the following record of the first week in January, 1911. January 1 the Omaha weather bureau station recorded a

On pages 92 and 93 (*Bulletin 33*) Dr. Hrdlicka refers to *Starr's Summary of the Archæology of Iowa* in an effort to show that burials similar to the burial on Long's Hill are common in its general neighborhood. A careful perusal of these references will show conditions altogether differing from those of the ancient bone bed at Long's Hill with the single exception that human bones were found in the mounds under consideration. In no place has Mr. Webster, the writer quoted in Dr. Hrdlicka's paper, shown a burial with earth covering like the Loess Man. The type of burial he described is quite common in Eastern Nebraska and Western Iowa and the burial mound on Long's Hill where fire had been used upon the embers of which had been deposited human bones was similar to other burials in the Missouri Valley on both sides of the river. Reference to the writer's paper on *Recent Excavations at Long's Hill,* will show that the fire of the baked clay area *had charred some of the bones which had been laid upon it* and must have been used by the persons who erected a burial mound upon the hilltop and had no connection with the bones of the primitive type which lay beneath the surface of the hill.

Many tumuli in this section show quite plainly similar construction to that on Long's Hill. In close proximity to them can be found sometimes deep at other times shallow depressions from whence was taken the earth with which to erect the burial mound, where excavation has proven the surface of the hill was used as a depository for mortuary remains and that the neighboring earth was piled above. Long's Hill burial mound is no exception to this rule.

Had acceptance been made to the invitation extended by the Omaha Commercial Club addressed to scientific societies, museums and universities the summer of 1909, Long's Hill might have been cross-sectioned and all controversy settled, but the owner of the property has forbidden further excavation there. The burial area on the hill is about 100 ft. north and south by 50 ft. east and west. Almost anywhere in its slight elevation skeleton material similar to that from the two "higher levels" in the original excavation can be found even to-day. Almost continual exploration of the burial mounds skirting the Missouri river has been kept up by the writer for 7 years. Burials similar to the mound burial at Long's Hill are common. Intrusive burials in old mounds are frequently met with. One large mound in the exploration of which a considerable force of volunteers was used and many days were spent, located on the southwest corner of Thirteenth Street and Missouri Avenue, South Omaha, Nebraska, showed 7 strata of calcined human bones with other strata of partially burned earth.

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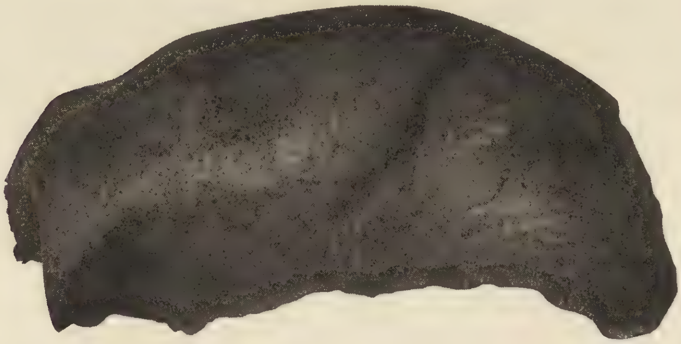
temperature of 5 degrees below zero at 5 o'clock p.m. At midnight street thermometers recorded a temperature of 11 degrees below zero. Monday the average temperature for the day was 8 below zero. At 9 p.m. it had dropped to 14 below as recorded by the local weather bureau station. Street thermometers recorded 17 below zero at 5 o'clock Tuesday morning while in the country adjacent to Omaha, unprotected by buildings 20 below zero was recorded at the same hour. Tuesday afternoon the weather moderated and continued to moderate until and including Sunday, January 8 although ice formed each night.

Unprotected hills, valleys and bench lands adjacent to Omaha showed a frost depth Sunday, January 8, of 10 inches, but in the forest areas, protected by leaf mold no frost was found and excavation labor was continued by me without hindrance from frost. Thus it is shown that frost does not penetrate to any great depth in the protected forest section adjacent to Omaha and frost which could have reached anywhere near the bones of Loess Man is not of record in the temperatures of this vicinity.



NEBRASKA LOESS MAN NO. 5, SHOWING IN PROFILE HEAVY SUPRAORBITAL RIDGES AND RETREATING FOREHEAD

NEBRASKA LOESS MAN NO. 5, TOP VIEW

At the bottom of the mound, which proved to be the original surface of the hill, a remarkable piece of pottery was found showing 7 different designs near the rim.

"Fire burials" are the rule and not the exception in the vicinity of Omaha. Space will not permit of a detailed description of Mounds Nos. 1 to 26 explored during the past three years. It is sufficient to say that none of them showed features similar to the deposition of Loess Man, although results from an archæological point have been satisfactory.

That there were human remains under the mound burial at Long's Hill, as Prof. Barbour says, was purely accidental, and this can be more readily understood when it is known that there is scarce 100 ft. along the higher river bluffs devoid of burials. In some cases they are every 50 ft. and sometimes even less, and they so continue for miles on both sides of the Missouri river. Dr. Hrdlicka lays great weight upon the fact that other burials were found in the vicinity of Long's Hill, but the writer knows it to be a fact that the bluffs on both sides of the river are practically one continuous aboriginal "graveyard" for scores of miles and finding other human bones in the neighborhood of Long's Hill has no weight in determining the method of deposition of Loess Man bones.

In the month of May, 1910, I visited the splendid archæological treasures in the museum of the Davenport Academy of Sciences and, through the courtesy of its curator, Prof. J. H. Paarmann, and his assistant, Miss Sheldon, I was permitted to examine the numerous Mound Builder skulls in the museum and particularly skulls figured in *Bulletin 33* as Plate XII, facing page 94—No. 4402, Illinois Mound Builder—and Plate XIII, No. 4401. To anyone with knowledge of Indian types these two skulls—both remarkable specimens—are plainly Indian. In profile they show heavy supraorbital ridges and low, retreating foreheads, *but in each skull, showing in profile these peculiarities the view from directly in front shows that the heavy portion of the supraorbital ridge extends only over about three-fifths of the orbital arch*—a common characteristic in Indian crania, (according to Dr. Hrdlicka) differing markedly from Loess Man whose ridges are pronouncedly heavy throughout their entire arch, showing this exaggerated ape-like characteristic to a degree truly remarkable.

In the Davenport museum, replete as it is with fine Indian and Mound Builder crania, there is not one specimen which has the uniformly heavy supraorbital ridges of Loess Man. Dr. Hrdlicka writes on page 100 (*Bulletin 33*), first paragraph: "The whole subject of exceptionally large supraorbital arches and low foreheads deserves exhaustive anatomical study." He does not associate either or both features with primitive man. He says they are quite common features in many of the skulls forming the large collection in the National museum.

In the writer's own collection is the skull of an Indian found associated with objects of white man's make, showing a comparatively recent burial, which has a more retreating forehead than any skull featured in Dr. Hrdlicka's paper and in profile quite heavy supraorbital ridges. In front view, however, the ridges over the orbital cavities are no heavier than any European crania.

On page 90 (b) (*Bulletin 33*) Dr. Hrdlicka writes: "This brings us directly to the very important concurrent fact of the total absence from any of the bones of perceptible fossilization. Such a condition would be hard to explain in bones dating from the period of the original loess . . ."

Does Dr. Hrdlicka admit great geological age for the "original loess" deposit? Prof. Bohumil Shimek's theory of the loess is that it is quite recent, in fact is still forming, that it is æolian in character and he is positive that the loess of Long's Hill is "recent."

NEBRASKA LOESS MAN NO. 3, SHOWING HEAVY SUPRAORBITAL RIDGES

NEBRASKA LOESS MAN NO. 6, SHOWING HEAVY SUPRAORBITAL RIDGES

Both Dr. Hrdlicka and Prof. Shimek argue against the geological antiquity of Loess Man bones, but they appear to differ upon one essential point—the antiquity of the hill. One argues the recentness of the bones because of the age of the hill in which they were found and lack of "fossilization," and the other because the hill has been formed in recent years. But both seem sure the bones are not as old as has been claimed they are, but they appear widely separated on the geological feature. Prof. Shimek believes the wind increases the growth of the loess far more rapidly than erosion decreases it.

Prof. Barbour found mineral matter had displaced the organic matter in several portions of Loess Man bones when attempting to grind a micro-

scopic section in his laboratory in Lincoln and bits of bones in the writer's possession from Long's Hill have been found to contain mineral matter, and later evidence tends to disprove the statement that there was no trace of fossilization in any of Loess Man bones.

Page 90, paragraph (c) (*Bulletin 33*) reads: "Numerous bones from the different levels show marks due to the gnawing of rodents and also cuts made by some sharp implement wielded by *human hands*." Again, on page 91, paragraph (d) (*Bulletin 33*) reads: "The presence of *knife* marks on a number of the bones has important bearing on the question of relationship of the bones of the different layers to one another."

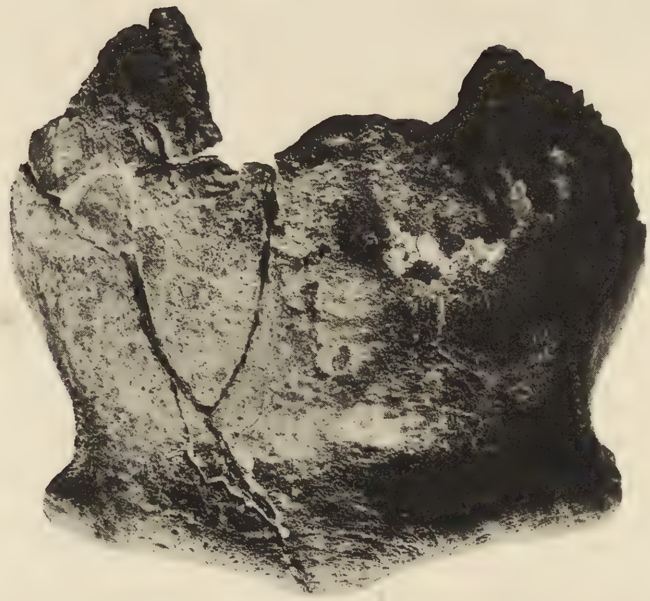
The so-called "knife marks" described by Dr. Hrdlicka may be knife marks, but the writer has good reason to believe they were not made with a knife or "a sharp implement wielded by human hands." Under a hand lens they look even less like the marks of a flint blade, which, I take it, is the idea Dr. Hrdlicka would convey. In my possession are scores of cuttings on bone with flint blades and other scores of bones showing the cuts made by wolves' and rodents' teeth and claws which very closely resemble those on Loess Man bones.

In the possession of Mr. Charles Lamb of Mondamin, Harrison County, Iowa, is a portion of a femur of a mammoth, mastodon or elephant, thoroughly "fossilized," found in the neighborhood of Mr. Lamb's home, which shows innumerable marks many of which are precisely similar to those on some of the bones from Long's Hill described by Dr. Hrdlicka as "knife marks" or "some sharp implement wielded by human hands." Surely if these marks were made by "an implement wielded by human hands" then the marks on the fossil bone in possession of Mr. Lamb were so made, but no claim has yet been advanced by the writer that man and mastodon were contemporary in the Missouri valley.

That human and other bones in the loess protected as were the primitive osseous remains under the Indian burial at Long's Hill will preserve their organic matter for ages with little change I have fully determined by finding many specimens under circumstances similar to the bones of Loess Man.

The precipitation of moisture in this vicinity is scarce one-half that in the Atlantic states. It is much less than that in the Ohio valley and as all of the more ancient burials in Eastern Nebraska were made upon the high, well drained ridges skirting the river valleys the bones are naturally well protected. My opinion as regards the various "layers" of bones on and in Long's Hill, based upon a great amount of careful labor in this section—all of which has been performed personally—is that a burial had been made on the crest of the hill without excavation of any kind and in the manner following:

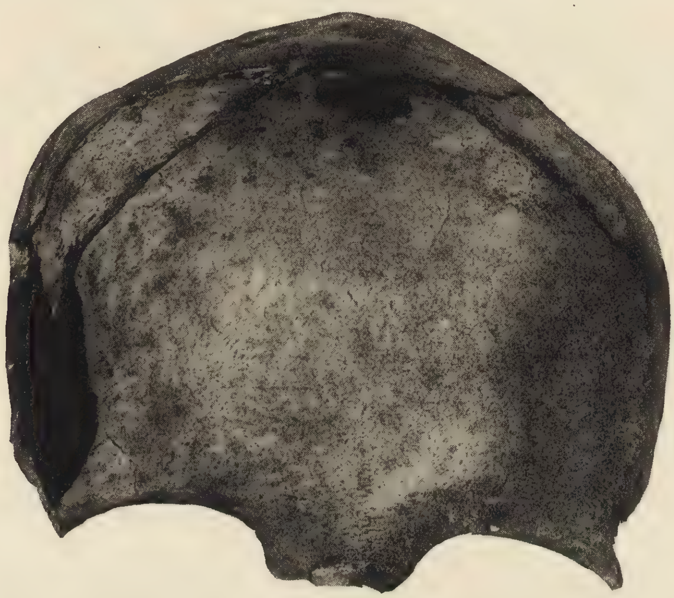
First a great fire had been made on the hilltop and when the brands had been reduced to ashes human bones had been laid in bundles and at full length upon the embers, some of which had also been spread over the bones. Next a covering of earth to a depth of five or more feet had been placed over the remains. At a much more recent date an intrusive burial of a child had been made in the top of the mound the grave for which had



FRONTAL BONE, SHOWING THICK PROTRUDING BROWS AND RETREATING FOREHEAD WITHOUT FRONTAL EMINENCES. SKULL NO. 8

FRONT VIEW OF NEBRASKA LOESS MAN, SKULL NO. 8, SHOWING PRONOUNCED AND HEAVY SUPRAORBITAL RIDGES

been excavated three or more feet, which disturbed in a measure, more or less, the original burial. I cannot hold as tenable the theory—for theory alone has been advanced by those who argue against the antiquity of Loess Man—that the people who made the two burials had knowledge of the existence of other human bones beneath their mortuary fires. From time to time other burials were made upon the hilltop after the manner prevailing among those early Nebraskans until today they can be found at almost any point an excavation is made.



MOUND-BUILDER SKULL SHOWING CHARACTERISTIC INDIAN SUPRAORBITAL RIDGES, DIFFERING FROM THOSE OF NEBRASKA LOESS MAN

In the original manuscript of my paper on *Recent Excavations at Long's Hill* was an account of one of my examinations of the earth immediately above and in contact with Loess Man bones giving the results of a comparison of it and a cube of the same size and from the same depth taken from a point of the hill 50 ft. south of the excavation where there was no evidence of disturbance by man. This comparison showed no difference in soil construction or color of the two cubes—neither had been disturbed so far as I was able to discover. Unfortunately the paper in its original form was too long for the space allotted to it and having given the editor permission to cut out what he deemed best this comparison was eliminated.

My archæological studies in this neighborhood have been in the main in the ruins of certain aboriginal houses. Beneath the floors of the houses are numerous caches. Nearly all of these caches show that their openings have been filled with earth and that fire had been kindled over the earth filling. Whether this was done in order to conceal the existence of the cache—a procedure frequently resorted to by early white explorers and hunters in the west—or to prevent moisture from getting at its contents is a question. In some instances the walls of the cache show they

have been subjected to burning so that a surface impervious to the percolation of moisture into the cache has resulted and a large number and variety of bone implements stored therein are found to be in almost perfect condition. The articles left in the cache are frequently covered by wood ashes—long used by pioneers as a preservative for various perishable articles. Wherever fire remains over the cache opening are not evident the bone implements in the receptacle are in very imperfect condition and

TYPE OF MOUND-BUILDER CRANIA, FIGURED EXTENSIVELY IN DOCTOR HRDLICKA'S PAPER

It shows a characteristic low forehead, and what appear in profile to be very heavy supraorbitral ridges. From directly in front the ridges over the orbital cavities are no heavier than typical Indian skulls and can in no way be compared to the pronouncedly heavy supraorbital ridges in Loess Man. The photograph is taken from a skull in the collection of the author.

show the effects of contact with moisture. When it is remembered that at the present day these ruins are from 4 ft. to 9 ft. deep and would naturally conserve the moisture from melting snow and rain, it can be readily understood that only the burning or baking of the loess prevented moisture finding its way into the cache. Even after snows lasting three months like those of the winter of 1909–10 I have found the cache beneath the "baked clay" or loess to be as dry as my laboratory floor.

What is true of the baking of the earth over the entrance to the cache is true of the "baked clay" area of Long's Hill, but in the latter case the fire was made and the preserving ashes supplied by the people who chose a sightly eminence upon which to bury their dead who had no reason to suspect there were other human bones beneath those over which they erected their mound.

Prof. Bohemil Shimek of the chair of botany, University of Iowa, who has devoted 30 years to a study of the deposition of the loess, admits in keeping with his æolean theory that Loess Man bones might have been covered by sand blown from the river bars. Prof. Shimek scouts the glacial character of the loess. His research has been of considerable extent and his theory has many adherents. Prof. Shimek has carefully examined the loess at Long's Hill, in order to determine its depth and general characteristics. I quite agree with him upon one material point—that of never having found fresh water shells disassociated from human activities in the loess along the Missouri river. In his conclusions Prof. Shimek says: "The human remains in question were not in undisturbed loess and hence are not fossils.

"These remains present no evidence of the existence of man in the glacial period, for not only are they not in undisturbed loess, but loess itself is not glacial."

At the time of Prof. Shimek's first visit to Long's Hill the area in which Loess Man material was found had been excavated and thoroughly sifted and only a part of the mound burial, which extends some distance further north, could be examined in situ. When he made his examination an area 25 ft. in circular diameter had been worked over many times and an examination of any part of the ancient bone bed was out of the question.

In the first paragraph of his summary Prof. Shimek admits the "mound" was ordinary, but "of interest because it contains *two* layers of human remains." This statement is true. The mound burial above the remains of Loess Man contained two layers of human remains and had no relation to the older human remains beneath it.

On the north perpendicular exposure of the excavation at Long's Hill Prof. Shimek noted several old root and gopher holes encountered also by the writer, but they were several feet from the bones of Loess Man. Even where they occurred they were not sufficiently large to admit the passage of human skulls or the longer bones of the skeleton and they ran off sometimes at acute angles. The writer's experience with gophers, which I speak of here because it has been advanced that these animals may have carried bones from the mound burial down into the hill, is that these little animals invariably carry foreign substances such as bits of shell, stones and bones *upward*, and I have found this fact of great assistance in determining the contents of a mound before exploration had begun. Archæologists whose work has carried them into Wyoming will remember the habits of ants in piling Indian trade beads upon their hills, and it may be gophers had the same "reason" for depositing objects they encountered at the top of their burrows.

Page 251 of Prof. Shimek's paper[5] contains a chapter on *Burial Habits of the Mound Builders* from which the author quotes a description of a burial mound at Lake Okoboji, Iowa, which shows at least 6 burials or layers of bones in one mound. Prof. Shimek thinks this a parallel case to the mound burial at Long's Hill and he has discussed it with the writer on

[5] *Nebraska Loess Man*—Bulletin of the Geological Society of America, Vol. 19, Published by the Society, Oct. 1908—Shimek.

several occasions, but to my mind the comparison applies only to the mound burial there and not to the older bones beneath the surface of the hill.

The Wallace Mound, described in a recent paper by the writer,[6] contained at least three layers of human bones placed similarly to those in the Lake Okoboji Mound.

Whether the bones of Loess Man were laid by human hands, covered by silt from glacial waters or by sand blown from the river bars may be a question, but that the bones were found in the undisturbed loess formation I believe has been proved.

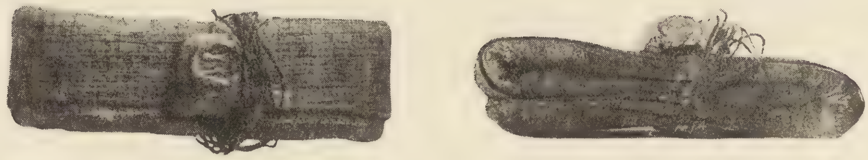
ROBERT F. GILDER.

Omaha, Nebraska, January, 1911.

HOARD OF BRONZE IMPLEMENTS ON A SCOTCH ISLAND. At a meeting of the Society of Antiquaries of Scotland on December 12, 1910, Doctor Joseph Anderson described a hoard of bronze implements and beads of glass, gold and amber recently discovered at Adabrock, on the island of Lewis. The hoard, found by a man digging peat, consisted of 2 axes, a gouge, a spearhead, 3 razor-blades (all of bronze), a double conical bead of gold, 2 amber beads, a greenish glass bead with whitish spots, 2 polishing stones or whetstones. All seemed to have been contained in a vessel of thin bronze of which only a portion of the rim and of the side toward the bottom remained. This hoard appears to have been deposited by a private individual. The fact that there are 3 razor-blades is paralleled by 3 found near Dunbar. These are from the Bronze Age, some few centuries B. C.

ROMAN CIST AT LINCOLN, ENGLAND.—Early in January interesting Roman discoveries were made at Lincoln. Workmen while leveling a field turned up a Roman urn of grey ware, 7 in. high and 5 in. across the rim. The decoration was peculiar; evidently rough clay had been fixed to the outside and drawn over the urn with the fingers, leaving a scaly sort of design. The urn was filled with dirt. Close by some large stones were dug up, one of which attracted attention. It is 2 ft. long, 18 in. wide and 12 in. thick. Mr. A. Smith, Curator of the Lincoln County Museum, inspected the object which appeared to be simply a rough square stone, except for a fillet along the sides. The Curator, however, requested that it be dug out so that he might see if there were any inscription. While the workmen were pulling up the stone, an almost square portion, 3 in. thick, slipped off, revealing the fact that the stone was a cist containing cremated remains, placed in a circular cavity 10 in. across. Among the burnt bones and earth were found two small glass vessels, usually called tear-bottles, which brand the burial as of Roman date. No inscription has been found.

[6] *Excavations of Earth Lodge Ruins in Eastern Nebraska*, American Anthropologist, Vol. II, No. I, January-March, 1909.



TWO VIEWS OF PAPYRUS A FOUND AT ASSUAN. SHOWS STRINGS AND CLAY SEAL

THE LONG HIDDEN TREASURES OF ELEPHANTINÊ

WHETHER the ancient Nubians and Egyptians believed that at the First Cataract of the Nile, where their frontiers came together, there was a chain stretched across to restrain the annual overflow, with Chnûb, the god of the Cataract, on the east holding one end, and his wife, Sati, on the west holding the other end of the chain, may be left to Egyptologists to decide. Now, however, we know that a great dam has been stretched across to regulate the overflow, and, also, that in the V century B.C., Chnûb, the ram-headed god of the Cataract, was worshipped at Assuan, on the eastern shore, and Sati, at Elephantinê across the channel. This last has been made plain by the remarkable papyri discovered within a few years past in the island which is so graphically described in *A Thousand Miles up the Nile*, by the distinguished traveler and archæologist, Amelia B. Edwards, as follows:

"The green isle of Elephantinê, which is about a mile in length, lies opposite Assuan, and divides the Nile into two channels. The Lybian and Arabian deserts—smooth amber sand-slopes on the one hand; ragged granite cliffs on the other—come down to the brink on either side. On the Lybian side a Sheyk's tomb, on the Arabian shore, a bold fragment of Moorish architecture with ruined arches open to the sky, crown two opposing heights, and keep watch over the gate of the Cataract. Just under the Moorish ruin, and separated from the river by a slip of sandy beach, lies Assuan." Just across the eastern channel of the Nile below the First Cataract at which the line between Egypt and Nubia crosses it, on the southern end of the island of Elephantinê was made the discovery of documents of great interest, some of which were written before the time when Ezra and Nehemiah were leading the Jews back from the captivity and rebuilding the walls of Jerusalem, and some others, during the generation following the work of these two remarkable men at the Holy City.

The traveler and archæologist from whose facile pen a quotation has just been made, pictures to us the site of the discovery thus:

"It is a very beautiful island—rugged and lofty to the south; low and fertile to the north, with an exquisitely varied coast line full of wooded creeks and miniature beaches, in which one might expect at any moment to meet Robinson Crusoe with his goat-skin umbrella, or man Friday bending under a load of faggots. They are all Fridays here, however, for Elephantinê being the first Nubian outpost, is peopled by Nubians only. It contains two Nubian villages, and the mounds of a very ancient city which

was the capital of all Egypt under the Pharaohs of the VI dynasty, between three and four thousand years before Christ."

The lower part of the island, fringed with palm trees, is devoted to the cultivation of the castor oil plant and other crops. Miss Edwards also tells us of two royal palaces which in the days of the early dynasties occupied a part of the island; but she did not tell of the fortress which stood on the southern promontory of the island, and its twin fortress at Assuan, in which garrisons were stationed to guard the frontier in the time of Ezra and Nehemiah, and, indeed, long before. The documents discovered on the spot have made this clear.

Continuing she tells us:

"We picked up several bits of inscribed terra cotta—evidently fragments of vases—and brought away some three or four as souvenirs of the place, and thought no more about them.

ISLAND OF ELEPHANTINÊ

"We little dreamed that Dr. Birch, in his cheerless official room at the British Museum, was at this very time deciphering a collection of similar fragments, nearly all of which had been brought from this very spot."

If she had even dreamed of what was concealed there, to be unearthed in the early days of the XX century, she would hardly have said of Elephantinê that:

"The ruined gateway of Alexander and the battered statue of Menephtah are the only objects of archæological interest in the island."

Having no claims to being an archæologist, I will tell of these discoveries chiefly in the words of Professor Sayce, who has ably edited the documents discovered in 1904 at Elephantinê; and in quotations from Professor Gunkel's account of the most interesting of all discovered by Doctor Rubensohn in 1907 and in the words of the documents themselves, translated by A. E. Cowley and Mary Gurney.

Professor Sayce begins his *Introduction* to the folio containing the 10 Aramaic documents put into his hands by Mr. Mond[1] by referring to some less considerable discoveries at Elephantinê. An examination of this very learned work, in which Mr. A. E. Cowley did the deciphering and translating of the Aramaic, and the documents which were photographed under the superintendence of Mr. Howard Carter, Inspector to the Service of Antiquities in Egypt, shows that no care was spared to make the most perfect presentation of these interesting finds. The documents as photographed are seen to be in clear large script, inclining to cursive, and are probably as easy to read as the papyri themselves. As Professor Sayce tells us, there are no distinctive forms for final letters such as we have in our Hebrew Bibles, which represent manuscripts later than these papyri by at least 15 centuries.

PLACE OF DISCOVERY

The folio of Professors Sayce and Cowley indicates in its title[2] that the papyri were discovered at Assuan; but it seems quite certain that, as Professor Gunkel says, they were discovered at Elephantinê; and were then carried across to Assuan for sale. Indeed, Professor Sayce says: "We were assured that they had been really discovered in the island of Elephantinê the actual spot from which they had come was pointed out to us." Yet he doubted, as now appears, without reason. He continues:

"The find was such as had never been made before. The Papyri were in practically perfect condition, the very strings which had been tied round them were intact, and the clay seals which fastened the strings to the papyri were unbroken."

"For the first time, the Aramaic scholar has at his disposal a series of connected and fairly lengthy documents, clearly written and but little injured, and furnished with exact dates."

The exactness of the dates is secured by the dating of these deeds and other business papers with the year of the Persian sovereign and the days of the Persian months and of the the Egyptian also.

JEWISH RELIGION TOLERATED

"There was no religious intolerance. The Jewish oath by Jahû was as valid in the courts of law as the oath by Sati." Sati was the Egyptian goddess of Elephantinê.

A JEWISH COURT

"The Jews had their own court—'the tribunal of the Hebrews'—which was recognized by the law quite as fully as any of the other courts of the country, Egyptian or Persian."

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[1]Robert Mond, M. A., F. R. S. E., Hon. Secretary of Davy-Faraday Research Laboratory of the Royal Institution.

[2]*Aramaic papyri discovered at Assuan.*

FIRST CATARACT OF THE NILE AT ASSUAN BEFORE THE DAM WAS BUILT

UNDER PERSIAN LAW

"The law under which the Jews of Elephantinê lived in common with their neighbors was that of Persia. Apart from 'the Tribunal of the Jews,' there is nothing to show that they were subject to any code of laws of their own or to local laws of Egypt. The conveyance of property is couched in the technical terms of Babylonian law, from which the law of Western Asia derived its origin, and the deeds which relate to it are drawn up in the form made familiar to us by the legal documents of Babylonia."

TESTAMENTARY POWER

A Jew who owned property "could will it to whom he would, and determine the succession to it after his death."

WOMEN'S RIGHTS

In this respect (the right to devise by will) the woman was on an equal footing with the man. She too, could hold property and leave it by will as she wished. "We learn that the woman had the same right as the man to pronounce a sentence of divorce; but in each case it was only valid if pronounced in a public 'assembly.'"

RACES IN THE ISLAND

"The mixture of names in the deeds is of considerable interest." They were found to be Jewish, Egyptian, Persian Syrian, Babylonian, Berber and perhaps others.

Professor Sayce tells us that a new light is thrown by these documents "on the history and character of the Aramaic language, as it was spoken and written in the Western provinces of the Persian empire in the V century B. C.; new words and meanings are added to the Aramaic Dictionary,

and new forms or idioms to Aramaic grammar, while the origin of the Biblical Chaldee is at length explained to us."

It may be added that while, of the persons mentioned in these deeds twenty-six, if not more, bear Bible names, the documents discovered about three years later at Elephantinê introduce the names of persons mentioned in the Bible, who were contemporaries of Ezra and Nehemiah, one of whom was still living when the papyri were written, while an appeal is made to the sons of another, who had probably died. Sanballat, the chief enemy of Nehemiah and his people, is represented in the papyri by "the sons of Sanballat, the governor of Samaria," and Jehohanan, mentioned in Nehemiah xii: 22, 23, is appealed to as "Jehohanan, the high priest at Jerusalem."

The discovery of this last roll of papyri was made by Rubensohn of the German expedition, in the same mounds on Elephantinê in 1907 where the 10 already mentioned had been found in 1904. The clue as to the locality was gained by the finding of the Egyptian word for ivory, "Jb" on a long strip of papyrus published by Euting in 1903. The island was named Jb or Jeb (now Elephantinê), because it was formerly a depot for elephants' tusks brought from the more southerly regions of Africa. The island is called Jeb in the papyri.

Doctor Herman Gunkel, writing of the last discovery by Rubensohn in 1907, in the *Deutsche Randschau*, Berlin, and referring to the former discoveries, says: "All this, however, is cast into the shade by the papyrus lately discovered by Doctor Rubensohn, and now placed in the Berlin Museum. . . . Two copies have been found, one incomplete. A third and fourth portion also refer to the same event. . . . All these papyri belong to the same period, as is shown by dates and names, and they explain one another." The roll was taken to the Berlin Museum with the seals unbroken. A description of them is found in the *Expositor* for January, 1911, in Gunkel's article translated by Mary Gurney.

A few extracts from the papyri found in 1907, and described in this article will now be given. The very first words of the earliest temple document are not without significance: "To our lord Bagohî, ruler of Juda, thy servant Jedonja,[3] with his colleagues, the priests in the fortress of Jeb." Here we find the high priest of the temple mentioned in the papyri first discovered, with assistant priests, appealing to the Persian governor of the province of Judea—Bagohî[4] whom Josephus mistakenly, as has long been thought and is now proven by the papyri, placed about 75 years after his real date, leading many critics to place Ezra and Nehemiah long after their time. The papyrus written in the 17th year of the reign of Darius II, (424–405, B C) is addressed to Bagohî "the governor of Juda." Josephus represents B goas (*Antiquities*, xi:7) as under Artaxerxes Mnemon, and Sanballat as "sent into Samaria" by "Darius, the last king of Persia." Sanballat is represented as the contemporary of Jaddua, the high priest who (Josephus says) went out to meet Alexander the Great when he was approaching Jerusalem in 331 B.C. But Nehemiah mentions him in 446 B.C., 115 years earlier, and these papyri mention his sons in 408 B.C. The

[3] or Jedonia.
[4] Persian, Bagoas—the Bogoses of Josephus.

VIEW ON THE ISLAND OF ELEPHANTINÊ, WHERE NUMEROUS INSCRIBED POTSHERDS ARE FREQUENTLY FOUND

critics referred to preferred to follow Josephus rather than Nehemiah. Since the discovery of this papyrus the mistake of Josephus is made evident, and the period of Ezra, Nehemiah and Sanballat is fixed with absolute certainty.

The occasion of the appeal to Bagohî was the destruction of their temple which had so long stood within the fortress on Elephantinê. Gunkel supposes that the Jews there were descendants of Jewish soldiers who had been stationed in the fortress as a garrison some centuries before this time. As will be seen, the temple to Jahû (Jehovah) was erected before the advent of Cambyses, and some think the Jews were there even as early as the

VIII century before Christ. At any rate, the fathers and grandfathers and great grandfathers of these Jews had worshiped here since the erection of the temple "in the days of the Egyptian Kings." It seems that there was a temple of Chnûb, the god of the cataract, just across at Assuan, (or Sewên,[5] as it seems to have been called at the time the letters were written). The chief priest at Elephantinê, Jedonjâ, tells Bagohî a pitiful story. It seems that one Waidrang was bribed by the priests of Chnûb to bring about the destruction of the Jews' time-honored temple.

"Thereupon, this cursed Waidrang sent a letter to his son, Nephâjân, who was ruler of the fortress of Sewên, saying that the temple in the fortress of Jeb must be destroyed."

"Then Nephâjân, brought Egyptian and other troops, and having weapons, entered the fortress of Jeb, pressed into the temple and razed it to the ground." "They broke the stone pillars which were there; they also destroyed the 5 gateways hewn out of stone, which were in the temple, and the doors with bronze hinges, the roof entirely constructed of cedar beams and the remaining furniture they burned with fire. The golden and silver vessels for sprinkling and the utensils of the temple they carried away and appropriated."

"In the days of the kings of Egypt our fathers had built this temple in the fortress of Jeb. When Cambyses conquered Egypt, he found this temple already built. He destroyed the temples of the gods of the Egyptians, but this temple was not injured."

Care is taken to state to the Persian official that Arsames, the Persian satrap of Egypt, was not to blame for the outrage, as he was absent from Egypt at the time.

Jedonjâ continues: "After the deeds of Waidrang and the priests of Chnûb, we wore sackcloth, with our wives and children, and we fasted and prayed to Jahû, the Lord of Heaven."

It seems that immediately after the destruction of their temple in 411 B.C., Jedonjâ and his colleagues sent a letter to the high priest at Jerusalem. For, in now appealing to the Persian governor at Jerusalem, we find them saying: "At the time this misfortune happened to us, we sent a writing to our lords and also to Jehohanan,[6] the High Priest, with his colleagues, the priests of Jerusalem, to Ostan, the brother of Anani and to the nobles of the Jews; but they returned no letter to us." He describes their grief: "We have worn sackcloth and have fasted since Tammuz day of the 14th year of King Darius unto this day; our wives have become like widows we have not anointed ourselves with oil, and we have drunk no wine. Also until this day of the 17th year of King Darius, no meal offering, no offering of frankincense or burnt offering has been brought to the temple."

"Thy servants now speak, Jehonjâ with his companions, and the Jews —all citizens of Jeb. If it appear right unto my lord, have regard to this temple to rebuild it."

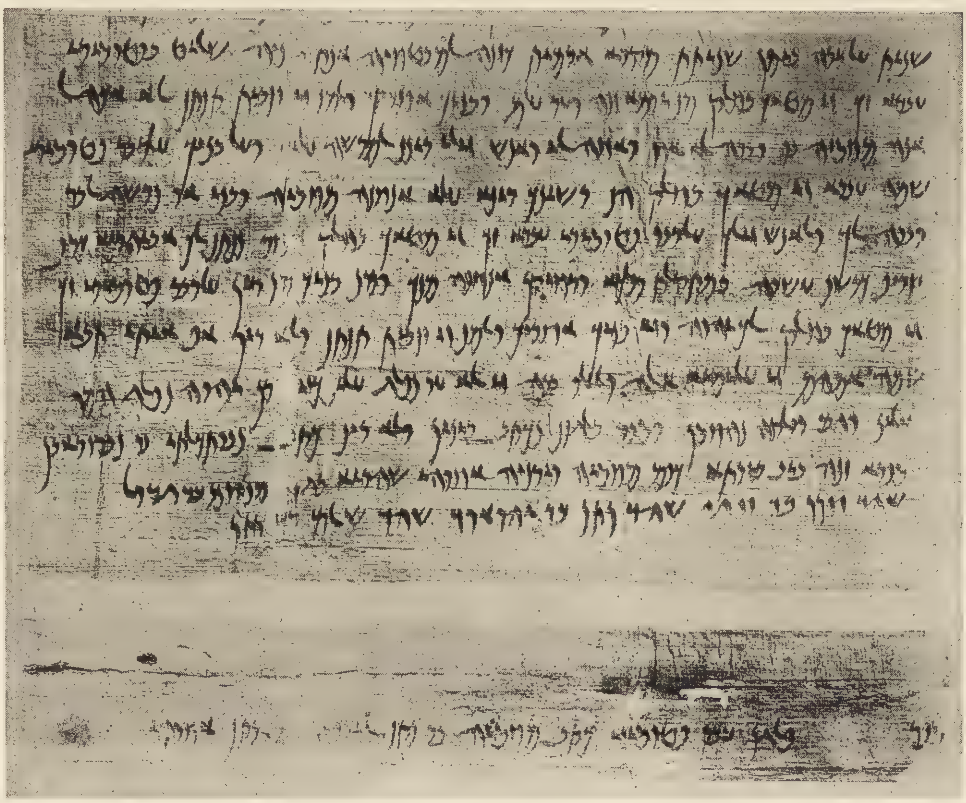
"Behold us here in Egypt who have received thy benefits and favors. We pray thee to send a letter unto thy servants concerning the temple of

[5]The Syene of the Greeks. The place to which Juvenal was banished.
[6]Mentioned in Nehemiah xii: 22, 23. (R. V.)

the God Jahû, that it may be rebuilt in the fortress of Jeb as it was before. Then will we offer meal offerings, etc."

"And with our wives and children. . . . will pray for thee if this be so [done] until the rebuilding of the temple." (See a similar promise in Ezra vi:10.) "All these things we have notified in our own letter to Delâjâ and Shelemjâ the sons of Sanballat the ruler of Samaria."

So we find the sons of Sanballat mentioned in this writing of November 408 B.C., and also Jehohanan, the high priest of Jerusalem, and turning to the book of Nehemiah we find much about Sanballat himself, the enemy



PORTION OF PAPYRUS K FOUND AT ASSUAN

of the Jews and the opposer of Nehemiah. We also find (Nehemiah xii: 11) Jehoiada a high priest under Nehemiah's administration, and Jehohanan, his son named as next after him in the line of high priests—evidently the same to whom this letter states that a letter had been written 3 years before.

The appeal to Jehohanan, the high priest at Jerusalem, was not answered. This high priest's brother Manasseh had been driven from Jerusalem by Nehemiah because he had married the daughter of Sanballat, the enemy of the Jews, (Nehemiah xiii: 28). He is credited with the building of the rival temple of the Samaritans, to whom he had gone. It is not very strange, if this was so, that his brother Jehohanan, and the leaders at Jeru-

salem, were unwilling to assist in rebuilding a temple in Egypt which they would probably consider another rival place of worship. So, as we have seen, these priests at Elephantinê, after waiting 3 years, turned to the gentiles for help. As Cyrus had ordered the rebuilding of the temple at Jerusalem and Darius had ordered the work which had been arrested by the opposition of the neighboring Persian pashas, to be resumed and forwarded, when the decree of Cyrus was discovered in "the house of the rolls" at Ecbatana, (Ezra vi.), it was hoped that the Persian king might be influenced by Bagoas to help in this extremity. They promise in return, it seems from the document, to pay, (probably from the revenues of the rebuilt temple,) more than a million dollars in silver (1,000 talents of silver). It is added: "As for the gold we have sent our message and communication. . . . All these things we have notified in our own letter to Delâjâ and Shelemjâ, the sons of Sanballat, the ruler of Samaria."

Professor Gunkel tells us of "a leaf, subsequently discovered," which he considers "a protocol[7] on the reports of Bagohî and Delâjâ," (Sanballat's elder son) in which these remarkable words are found: "It is for thee to command in Egypt, before Arsham, concerning the Altar-House of the God of Heaven, which was built in the fortress of Jeb, before our days and before Cambyses, and afterwards destroyed by the accursed Waidrang in the fourteenth year of king Darius, that it be rebuilt in its own place, as it was before; meal offering and frankincense to be again offered at the altar as in the ancient days." It will be noticed that *burnt offerings* are not mentioned here. The offering of rams, it is thought by Professor Gunkel, was not to be allowed, lest the anger of the worshipers of Chnûb, the ram-headed god, should be again aroused.

To a layman, in such matters, at least, it seems strange to find that, in this temple at Elephantinê, a company of priests under a chief-priest had been accustomed to present in the worship of Jehovah, sacrifices directed by the 'Priest Code,' which many critics assure us, was promulgated by Ezra in 444 B.C.—a mode of worship which had evidently been practiced there before 525 B.C., when Cambyses conquered Egypt, 81 years earlier.

If Bagoas and Sanballat were legendary characters, as Winckler has asserted, it seems strange to find them mentioned as real persons here, and one of them, and the son of the other earnestly appealed to for help. If Sanballat was governor of Samaria under "the last king of Persia" at the coming of Alexander the Great in 331 B.C., as critics following Josephus hold, it seems strange to find two of his sons men of influence in 408 B.C., 77 years before. If Nehemiah and Ezra flourished in the time of Artaxerxes II, (d. 359) as some have lately contended, we are filled with wonder when we find the grandson of their contemporary, Eliashib, appealed to as high priest in 411 B.C. by the Jews in Elephantinê. Grandsons do not usually precede their granadfathers. If new problems are raised by these discoveries, as some critics think, here are some that will be quite old when these are solved.

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[7]This 'protocol,' he tells us, was translated by Smend and Zidzbavski.

These papyri seem to settle several things which have been questioned:

1. That Ezra and Nehemiah lived at the time represented in the books bearing their names.

2. That the ritual of worship laid down in Leviticus was followed long before the time of Ezra, and therefore was not originated by him.

3. That since the Aramaic of these documents shows that Aramaic documents quoted in Ezra, and the Aramaic passages in Daniel do not indicate a later origin than that traditionally assigned these books, critics are forced to find other reasons for discrediting them.

4. That such characters as Sanballat and Johanan mentioned in Nehemiah and Bagoas, the Persian governor, were not mythological, but real men living in the time of Ezra and Nehemiah.

The whole result is an impression of reality and truth in the portraiture of the times as given in the books of Ezra and Nehemiah; and it is hardly possible to believe these most single hearted restorers of God's worship to have been either deceivers of deceived.

When we find Nehemiah humbly confessing, "We. . . . have not kept the commandments, nor the statutes, nor the ordinances which Thou commandedst by thy servant Moses," (Neh., i : 6, 7) and when we find the feast of Tabernacles kept with such faithfulness and joy, and read "For since the days of Joshua, the son of Nun, unto that day had not the children of Israel done so" and when we find it stated that "He [Ezra] day by day, from the first day unto the last day, read in the book of the law of God," who can believe that it was all a solemn farce in which Ezra was foisting a forgery on a credulous people, with Nehemiah joining in the deception? And Nehemiah implies quite accurate knowledge of the Jewish history "since the days of Joshua, the son of Nun," in speaking of a law that, though existing, was not observed during the long interval, showing us that the non-observance of an ordinance is no proof of its non-existence.

Parke P. Flournoy.

Bethesda, Md.

BOOK REVIEWS

THE STONE AGE IN NORTH AMERICA[1]

MANY years of close study and extensive travel, including months spent under the most trying circumstances, have gone to the making of this book which can be highly recommended both for the minuteness of its detail and the orderly arrangement of facts enabling the reader easily to grasp and retain them. Mr. Moorehead makes a strong argument for depending upon archæological facts rather than upon folk-lore in reproducing the conditions of historic times. In case of western tribes of Indians we should have expected

[1] *The Stone Age in North America.* By Warren K. Moorehead. In two volumes. Fully illustrated, $7.50 net. Houghton-Mifflin Co. 1910. Boston and New York.

that they would have had some traditions of the Spanish Conquest, but none such are to be found among them. This is the more significant when we consider that it was their first acquaintance with firearms and their first knowledge of horses. From this it is evident that tradition among the Indians is of little historical value, and we are forced to believe that the study of concrete evidence is of most importance in reconstructing our knowledge of the prehistoric people of America.

Mr. Moorehead warmly praises the *Hand-book of American Indians*, considering it invaluable in the study of their past, but feels that it leaves a large field untouched, which he has undertaken to consider in these two profusely illustrated volumes. Special praise is given to Dr. Otis T. Mason for his ethnological studies and his efforts scientifically to classify Indian implements. From his investigations it would seem that in pre-Columbian times the natives were on the verge of discovering many new mechanical contrivances, having already the "reciprocating two-hand drill, the bow and strap drill, and the continuous motion spindle."

Dr. Peabody and Mr. Moorehead spent much time in classifying the objects in museums and finally reached a nomenclature which was accepted by the Anthropological Association. Attention is called to a most excellent paper prepared at the request of Dr. Rau of the Smithsonian Institution by Mr. Sellars when he was over 80 years of age. As this is now out of print, Mr. Moorehead reproduces it almost entire. It has special value since Mr. Sellars when a boy knew George Catlin and so, in a fair way represents the views of that high authority. Again on page 92, vol. 1, we are furnished an account of Cabeza De Vaca, one of the early Spanish explorers, quoting from his narrative the stories told by the Indians in describing the uses to which a flint knife could be put. An account is also given of a skull found in North Dakota which had been pierced by a flint arrowhead, showing with how much skill they were used against enemies. And this is only one of many instances.

The author concludes that then as now there must have been a class of men skilled in workmanship, since at various points great numbers of implements have been found indicating the location of workshops. Each man did not then make his own implement but the business of manufacturing was organized and perhaps led to the formation of a trust. In one room in a ruined Pueblo twenty-two axes were found, all showing the same workmanship, together with a number of other similar collections. In volume 1, page 157, this theory is supported by the illustration of a most perfect specimen of flint knife, of which only one other of the same pattern and such excellent workmanship has ever been found.

A few flint human heads have been found (vol. 1, pp. 162 and 165) together with many pieces for which no use can be imagined, and so they are put together under the vague term of ceremonial objects. The most remarkable of these come from Tennessee and Kentucky, where prehistoric graveyards abound. In addition to these, many crude implements have been found which evidently had been used for agricultural purposes. Special interest attaches to caches of implements which occur in all parts of the country, but which have been only partially reported. Mr. Moorehead

mentions one of unusual interest found by Dr. J. F. Snyder of Virginia, Ill., described in the *Archæologist* for October, 1903. The largest cache was found by Mr. Moorehead in 1891 and 1892 in the Hopewell group near Chillicothe, Ohio. From this cache there were taken 8,500 discs each about 6 in. in diameter and ½ in. thick, being evidently raw material ready to be worked over at leisure.

The presence of different material in various sections of the country gives character to the implements in different regions. Flint Ridge near Newark, Ohio, furnished an inexhaustible mine for the best material available for spearheads and arrowheads, and it is in the Ohio Valley that some of the very best specimens are found. But implements are everywhere found which are made from material which must have been transported long distances. In a single mound in Ohio implements and ornaments are found made from obsidian, which must have come from the Rocky Mountains, copper which must have come from Lake Superior, mica from North Carolina, and sea shells from the Gulf of Mexico and the Atlantic Ocean. But the predominant implements and ornaments were of local material, and bear marks of local fashions in workmanship. Wisconsin is rich in variety as well as in beauty of forms. In Illinois and Missouri yellow chert and white nodules of flint are the prevailing material. Iowa and Minnesota have a special kind of beautiful white flint. In Ohio the black flint with the white specks of the Mercer limestone was occasionally used. An illustration showing a flint object from Egypt tells how fashions differed in different parts of the world. The obsidian implements evidently were held in great esteem and were handed down as heirlooms and regarded as lucky stones. A number of pages of fine illustrations describe celts which seem to be a step on the way to the knife. Goughes, which seem to have been used for removing charred portions of wood, also have their fair share of notice. In northern United States and British Columbia ground axes were uncommon, evidently because the local material was not fitted for their manufacture.

Fully half of the second volume is given to the study of implements whose use is problematical. Among these are ranged all the gorgets and pendants of varying shape. Much attention, however, is given to tablets, a comparatively few of which have been found. The question arising is were they designed to convey a message, some of them being irregularly marked, or were they merely ornamental? Mr. Moorehead quotes approvingly from Mr. Fowke to the effect that the finest discs and in greatest numbers are found south of the Ohio River—those found in the Pueblo country being rarely concave as are many in the east.

Mr. Moorehead has arrived at some startling conclusions (vol. 2, p. 3), relating to the absence of inanimate objects in the ornamentation of prehistoric Indians. "I have never seen," he says, "an effigy of a mountain, a spring, a plant or a flower." This reminds one of Whittier's lines

> Not for him the lesson drawn
> From the mountain smit with dawn.
> Star-rise, moon-rise, flowers of May,
> Sunset's purple bloom of day,—
> Took his life no hue from thence,
> Poor amid such affluence ?

. . . .
Haply unto hill and tree
All too near of kin was he:
Unto him who stands afar
Nature's marvels greatest are;
Who the mountain purple seeks
Must not climb the higher peaks.

But we do find numerous specimens showing that the Indians were impressed by the animal life about them. Bird stones are numerous especially north of the Ohio River, also rude figures of the bear, the turtle, and the frog, with an occasional representation of the human form. These all occur at times as bowls of pipes of which great numbers have been found of all shapes and sizes, usually adorned with some rude etching or drawing.

The chapters on the food of prehistoric man and his method of preparing it are most instructive. Nuts, edible roots, and grasses did indeed often compose his bill of fare; but maize was everywhere cultivated and the kernels when dry had to be cracked or broken in some way. In accomplishing this there was finally evolved the mortar and pestle which have been in use the world over among primitive people. Prehistoric man in America was no exception in this regard to his cousins in Europe or elsewhere. Bone implements were largely used in their industries, and bone ornaments were everywhere in fashion. For these purposes the bones of animals were shaped to suit the various uses intended. Pendants, hairpins, and bracelets were much in favor. Special interest is aroused by the description of copper objects distributed widely from the center on Lake Superior where many partially worked mines have been discovered.

The collection of the Archæological and Historical Society under the charge of W. C. Mills has some remarkable specimens of pearl beads, one string of which is estimated by Mr. Kuntz to have been worth $10,000 and to have required two or three generations of Indians for its collection. Most interesting of all, since the genuine article was not sufficient to meet the demand, the Mound-builders engaged in counterfeiting pearls, making clay balls of the size of pearls and covering them with a malleable mica to give them a shining appearance. Again our interest is stirred by the bags, moccasins, and leggings made of fibre of flax, flags, and leaves of cat-tails, calling to our mind the leggings and moccasins worn in Russia by peasants returning from long pilgrimages and who evidently had worn out the shoes with which they started from home, thus illustrating the tendency to reversion constantly present in the human race.

We have not space to mention the chapters on pottery of which many specimens are found. The author concludes that the Indian population of America in pre-Columbian times was much greater than it has been since, but that it never exceeded one million. The works of the mound builders and the extensive cemeteries indicate much larger population of Indians than has existed since measles and smallpox have decimated their numbers. Likewise the Indian population was always most numerous along the Mississippi River and its tributaries. "In the Cumberland and the Tennessee valleys such multitudes of them lived that even after a hundred years of ruthless destruction of the stone grave cemeteries, there still remained

thousands of unopened sepulchers." Fourteen years ago the author estimated that there were 3,292 various monuments and village sites recorded in Ohio. Since that time Professor Mills has greatly added to this number so that it is probable that there are at least 20,000 monuments great and small in the State.

The volume concludes with a cautious discussion of the antiquity of man in America and of the classification of ancient culture groups. As a whole the work is a splendid monument to the author's industry in collecting facts and to his skill in presenting them both in text and illustrations so that the reader cannot fail to get their meaning.

FLORENCE B. WRIGHT.

THE PAST AT OUR DOORS[2]

MACMILLAN and Company are issuing a series of *Readable Books of Natural Knowledge*, of which the present volume, *The Past at our Doors*, is the fourth. Within the compass of 190 pages the author amplifies the ancient saying, "There is nothing new under the sun," by tracing the origin of many present-day customs in matters of food, dress and homes. The author shows that much of contemporary life, apparently modern, is a survival or adaptation from earlier days. In some cases a word or custom has been retained while the origin has been obscured. What was common in one grade of society two or three centuries ago, has been preserved in another. Even the modern flat cannot claim novelty, for, in the XV century, many a London house belonging to the well-to-do class had a dugout cellar in addition to a first and second floor, thus furnishing accommodations for three separate families.

An index makes the material immediately available to the reader.

EDITORIAL NOTES

PAINTINGS AT PALENQUE.—Professor Eduard Seler of Berlin, on leave of absence in Mexico, has just discovered a set of ancient paintings on the walls of one of the apartments of the Palenque Palace.

STATUE OF APOLLO FROM ALGERIA.—Not long ago, according to reports, a statue of Apollo was discovered at Cherchell in Algeria. The sculptor is unidentified, but the work gives indications of belonging to the golden age of Hellenic art.

[1] *The Past at our Doors; or The Old in the New around us.* By Walter W. Skeat, M. A., Fellow of the Royal Anthropological Institute. Pp. xi, 198; 52 illustrations. 50 cents net. London and New York. The Macmillan Co. 1911.

MARKERS FOR THE SANTA FÉ TRAIL.—The county commissioners of San Miguel county, New Mexico, at a recent meeting decided to put in place the granite markers for the Santa Fe trail as soon as weather conditions permit. The markers are to be placed on the hill between Las Vegas and Watrous; the plaza, Old Town; Bernal; San Jose, Koloski. (See RECORDS OF THE PAST, vol. IX, p. 343.)

COPY OF BOOK OF THE DEAD.—The British Museum recently received a present of what is said to be next to the longest Egyptian papyrus known. It is 122 ft. long and 20½ ft. wide. The characters are remarkably clear. It is a copy of the Theban Book of the Dead, with the addition of a collection of invocations, addresses and hymns to Amen-Ra, the great god of Thebes. It seems to have been written for the Princess Nesi-ta-nob-asher, between 1040 and 1000 B.C.

ARCHÆOLOGICAL SOCIETY IN INDIANA.—Plans are under way for the formation of a State Archæological Society in Indiana. F. W. Gottlieb of Morristown, and John Sexton Abercrombie of Rushville are leaders in the movement, the first as president and the latter as secretary. Such state societies are to be welcomed by all interested in archæology and in the preservation of archæological remains of all kinds. We wish the proposed organization success in every way.

YALE EXPEDITION TO PERU.—Hiram Bingham will leave New York early in June to spend 6 months in an expedition to Peru. He is to be accompanied by a geologist, a topographer and a naturalist. "Headquarters will be at Arequipa where the Harvard astronomical observatory is located. The work will be among the Inca ruins largely given to tracing the history of these wonderful people. An unexplored mountain and lake and some hitherto unknown territory will be studied.

"President Leguia became deeply interested in the research work conducted by Professor Bingham during his last visit to Peru two years ago, and has offered all possible facilities for the proposed expedition."

[*Peru To-day*, April, 1911.]

ACTIVITIES OF THE SCHOOL OF AMERICAN ARCHÆOLOGY FOR THE PRESENT YEAR.—Among the plans of the School of American Archæology for 1911 may be mentioned the work which the Utah Society will resume in May in the Navajo Mountain District, with Oljato, Utah as the field base. The ethnological and archæological survey of the Rio Grande Valley will be continued, the principal excavations to be in the Jamez District. Mr. Harrington will conduct investigations among the Indians of the Northwest. The citizens of Seattle have raised funds for this latter work.

A summer school in the field will be held during August at the canyon of El Rito de los Frijoles. Special announcements of the summer school will be sent on request addressed to Edgar L. Hewett, Director, Santa Fé, New Mexico.

GENERAL VIEW OF THE ABBEY OF SAINT BAVON SHOWING THE OCTAGONAL BUILDING KNOWN AS THE SANTUARIUM

RECORDS OF THE PAST

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RECENT EXCAVATIONS IN THE ABBEY OF SAINT BAVON

IN the quaint old city of Ghent, Belgium, much speculation has been caused by finding, under the ruined walls of the ancient Abbey of Saint Bavon, a number of tombs, the existence of which, up to this time, was unknown. At first there seemed no doubt that the graves contained the remains of victims tortured and buried alive, thus disclosing another grewsome chapter of horrors perpetrated in the XVI century when Flanders was under Spanish rule.

Known as the Chateau des Espagnols (the Castle of the Spaniards) the beautiful Abbey of Saint Bavon was for a century and a half the citadel of Spain and it was naturally to this period that was first ascribed the recent discoveries which seemed to stand as monuments to the cruelty and bigotry of the times. Ghent was the very center of opposition to the Spanish rule and the theater of many important events of that period. In appearance it has never ceased to belong to the Middle Ages and it is difficult to realize that we are in the XX century as we pass along its quiet streets, the placid waters of the numerous canals reflecting the curious old houses with their fantastic variety of gables ornamented with carvings and scrollwork.

Passing through a massive gateway, we find ourselves among the imposing ruins of the Abbey. The mellow tones of the chimes from the old belfry and the soft twitter of birds in the ivy-covered walls, alone break

FIG. 5. RUINS OF THE CHAPTER HOUSE

the silence which broods over the place. The spirits of the dead seem to rise to meet us and within the walls of this beautiful old cloister there is a world of romance and tragedy. One of the oldest ecclesiastical ruins extant, its early history is of unusual beauty and interest and today it stands one of the first monuments to Christianity in Belgium.

This magnificent edifice was built on the site of a Temple of Minerva in the year 630, by Saint Amand, the great French missionary, and was first known as the Monastery of Saint Peter. Here it was that Saint Bavon came after his conversion by Saint Amand and lived many years a recluse. So great was his piety and so wonderful the miracles he wrought, that 60 noblemen, following his example, devoted themselves to a penitential and austere life. The church of Saint Bavon was founded by them and from that period the Abbey became known by that name and is mentioned as such in documents dated 864 and 974. It was restored by Saint Bavon and was richly endowed by him and until the XVI century was one of the wealthiest of Flanders. It is said to have been bestowed upon the celebrated Eginhard, secretary and biographer to Charlemagne. It is certain that he was Abbot here as he is mentioned as such in a diploma of Louis le Débonnaire, dated 819.

In the XIII and XIV centuries it was often the residence of the Counts of Flanders, and for a time Edward III of England and his queen, Philippine, lived here and it was here that their son, John of Gaunt, later Duke of Lancaster, was born in 1340.

FIG. 6. PICTURESQUE CORNER IN RUINS OF THE ABBEY OF SAINT BAVON

In the ancient church, of which only the outer walls remain, on June 20, 1369 was celebrated with great pomp and splendor, the marriage of Marguerite, daughter of Louis de Male, Count of Flanders, with Philip the Bold, Duke of Burgundy. Here also in 1422 was buried the Princess Michelle of France, first wife of Philip the Good, the story of whose tragic death by poisoning in the Cour de la Poterne, rue d'Assaut, is well known.

With this brief and superficial glance at the earlier history of the Abbey, we arrive at the year 1540. After the revolt of the people of Ghent in 1539 against the rule of Spain, Charles V decided to make within the city a fortress to hold them in better subjection. To choose a good situation for his new citadel, he ascended the tower of the church of Saint John, accompanied by his brother Ferdinand and the Duke of Alva. His glance fell upon the Abbey and he decided upon that spot—the one where for 900 years the peaceful monks had led undisturbed their quiet lives. On May 12, 1540 therefore, the Chapter left the Abbey and installed itself in the church of Saint John, which from that time possesses the relics and the name of Saint Bavon. (When the bishopric of Ghent was created by Paul IV in 1559, at the request of Philip II, this church was made the Cathedral.)

The work of demolition immediately began and only such buildings were spared as would be useful adjuncts to the new castle, already mentioned as the Chateau des Espagnols. It was here that Counts Egmont and Horn were imprisoned in 1567. The church was left undisturbed to serve as

place of worship for the garrison and until the beginning of the XIX century, the Cloister, the Refectory, the Chapter House, and the Lavatorium or Santuarium, were preserved. It is in the midst of their picturesque ruins, which since 1834 have been under the surveillance of the Local Commission of Monuments, that the Lapidary Museum was established in 1882.

The destruction of the old Monastery mill in 1885 brought about the unexpected discovery of 59 ancient tombstones of the XIII century, now in the museum, thus making it the richest of its kind in the world. Aside from their great archæological value, they are extremely interesting as the engraving of life size figures on them is but slightly worn. Of all perhaps the most curious is the gravestone of the artist, Hubert van Eyck. This slab was unearthed in 1892 and is unusual on account of its size, being some 7 ft. high by 4 ft. wide. Deeply cut into the stone is the figure of a skeleton

FIG. 7. THE GOTHIC HALL

partially covered by a square shield which evidently at one time bore an inscription. One bearing the date 1271 and representing a father and daughter of the nobility, is also very remarkable. (Fig. 8.)

Among the many treasures in the museum is the handsome sarcophagus of John of Cleves (1504) and in the center of the hall is a Romanesque relief from the portal of the ancient church, found in 1852, which represents miracles wrought in 1058 by the relics of Saint Bavon. This remarkable collection is in the hall which was the Refectory and which has served in turn as arsenal, chapel, and until taken for the museum, as parochial church of Saint Macaire. It is the largest Romanesque hall in Belgium and with its high arched ceiling lighted by 24 windows, it is very impressive.

In 1495 the Abbot Mercatel (natural son of Philip the Good, Duke of Burgundy and Count of Flanders) transformed part of the crypt into a

FIG. 8. TOMBSTONE IN THE LAPIDARY MUSEUM BEARING DATE 1271

Gothic hall, the vaulted ceiling of which is supported only by one central column.

Only three walls remain of the sadly dilapidated Chapter House. On the west side are the windows in the Transition style which are reproduced in all works on architecture. In 1845, 21 tombs in the shape of mummy cases, and dating from the XI century, were discovered under the hall, the stones covering them having been already removed when the pavement was laid in the XIII century.

The quaint old Gothic well, known as "The Miraculous Well of Saint Macaire," is particularly picturesque with its sharp, pointed cover clearly etched against the background of the dark, glossy leaves of the English ivy which covers the old grey walls.

Quite the most beautiful part of these old ruins, however, is the corner where stands the curious little two-story octagonal building known as the

FIG. 9. THE REFECTORY

Lavatorium, or Santuarium, so called as the upper floor contained the relics of Saint Macaire. To ensure the safety of these, no stairway was made in the building, access being gained through the roof. After the suppression of the Abbey (1540), however, a stairway was built and the ground floor was converted into the burial place of the governors and chaplains of the Château des Espagnols. In 1634 it was converted into a chapel and dedicated to Saint Macaire. It is to the left of this queer little building that the recent excavations have been made near the southern side of the cloister, the pillars and arches of which have long since disappeared.

I approached the newly disturbed earth with hesitating step and with mingled feelings of interest and dread looked into the tombs below. One felt that it was sacrilege to gaze with the idle curiosity of the tourist into recently opened graves and to speculate upon the lives and deaths of the poor creatures whose bones today are exposed to the public gaze. My first impression was one of surprise at the unusual size of the skeletons. This quickly changed to horror at the sight which met my eyes and which seemed to evidence beyond a doubt the unspeakable cruelties which under Alva's rule were inflicted upon those who, justly or unjustly, fell under suspicion. Careful investigation however, has enabled the Curator of the Museum to place before the public a plausible explanation of the contents of these graves.

During the summer of 1910, when excavations were being made under the auspices of the distinguished archæologist, Monsieur Van Werveke, Secrétaire de la Commission Communale de Publicité, to find traces of the Roman cloister, replaced by one of Gothic construction in 1495, a tomb,

FIG. 10. GENERAL VIEW OF THE TOMBS EXCAVATED

built of bricks, was discovered. The slab which at one time covered it had disappeared and the interior had been filled up with rubbish, among which was found a quantity of small yellow, green, and brown enameled squares. These in the Middle Ages were used to make the curious mosaics

of which the Lapidary Museum contains numerous fragments. When the rubbish was cleared away, there was found, resting on a three armed cross of bricks, a skeleton, the legs and shoulders of which were encircled by heavy bands of iron to which were fastened large rings. The skeleton was lying on the right side and the skull was crushed in. (Fig. 1.)

The aspect was startling. The Curator, who has made exhaustive research in the archives concerning the corporal punishments inflicted in the middle ages on the accused and condemned, thought he had found the skeleton of one of those unfortunate women who sometimes were buried alive. The iron bands, the unusual and strained position of the skeleton, the crushed skull and the glass filled grave, all favored such an explanation.

The search was continued and 9 other skeletons were exhumed, 8 in brick tombs filled with rubbish, one covered by a pointed arch of bricks. At the end of the large pit which had been dug, another skeleton was found with the same iron bands fastened over the shoulders, but not over the feet. (Fig. 2.) The irons were alongside in a vertical position. Rusted by the dampness, they *could* have been bent by the weight of the glass, either toward the skeketon or toward the wall. This fact threw a doubt on the value of the admitted hypothesis and determined the Curator to make a minute examination of the walls of the tombs.

After they were cleaned with extreme care, he found that where the plaster still remained, a certain number of small and large crosses were traced in a rudimentary manner in oil colors of a reddish brown. In the first grave could be distinguished, on one side, the crucified Christ between the Virgin and Saint John the Baptist, and on the other side, the lower part of a figure in red draperies. In the tomb with the arched top were found narrow iron bands to which were attached at regular intervals small particles of oak wood. In the others were also found remnants of wood attached to the iron, always on the side toward the skeleton. At the head and foot of several were iron plates bent at right angles. All these circumstances caused the Curator to abandon his first theory and admit that he has discovered graves, probably of the XIV and XV centuries, in which the bodies were enclosed in caskets of oak, the sides and bottoms of which were encircled by heavy iron bands terminating in large rings which served as handles. The plates of iron, bent at right angles, held together the various pieces of wood by means of large nails, of which a number were found. In no account rendered of the expenses for the execution of a woman condemned to be buried alive, is there any mention of expenditures for irons to bind the victim, although the smallest expenses are set down in detail.

Several of the graves, however, present peculiarities which cannot be so easily explained. There are skeletons entirely covered by a heavy iron cage, resting on iron feet the length of the wall, and the bars of which are only about 4 in. apart at their widest opening. (Fig. 3.) In one of the tombs there is a plate of iron riveted to the cage on the side *toward* the skeleton. Here there can be no question of pieces of iron having been attached to a casket or box. There is a *possibility* that they were put in the graves so that a second casket might be placed above the first. This hypothesis is admissible because at the present day in the cemeteries of

FIG. 4. A HEAVY STONE WAS FOUND UPON THE SKULL.

FIG. 1. THE FIRST SKELETON EXHUMED.

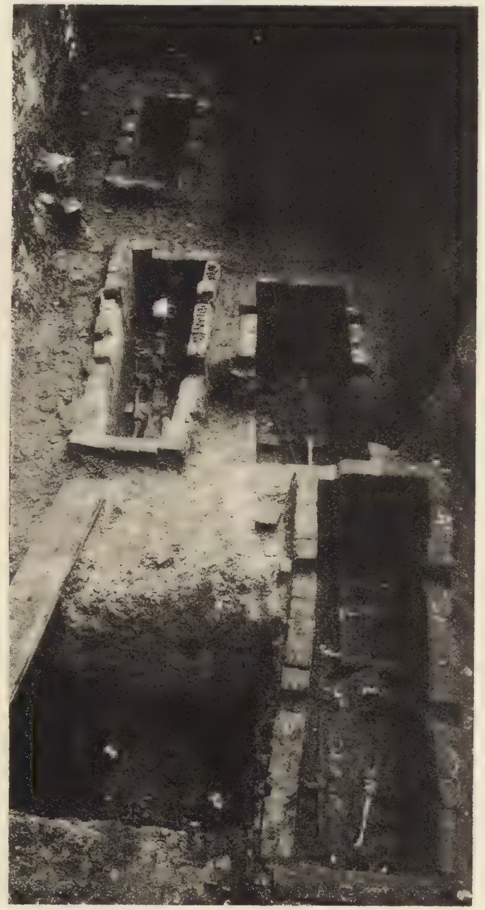


FIG. 2. AT THE END OF THE PIT ANOTHER SKELETON WAS FOUND.

Ghent, two, and sometimes three, coffins are placed in the same grave one above the other, but resting on iron bars fastened into the wall.

A document published in 1855 states that under the floor of the Chapter House, a skeleton in chains was found. These chains exist today and consist of two pieces composed of one large ring to which is attached a link upon which is fastened a hook. It is supposed that these pieces (which, by the confession of the author, were not fastened to the skeleton, but were

FIG. 3. SKELETON BENEATH AN IRON CAGE

lying alongside) served the same purpose as the iron bands found in the graves today—that is, the hooks were driven into the wood of the coffin and the link with the ring served as handles. As to the crushed skulls (Fig. 1) and one upon which a heavy stone was found resting (Fig. 4) the eminent Professor Leboucy of the University of Ghent has declared, after minute examination of the contents of the graves, that these could have been crushed by the weight of the glass and rubbish thrown in upon them. As to the

curious position of the first skeleton, (Fig. 1) it could have been caused by the iron band of the coffin which supported it slipping toward the right, thus causing the left shoulder to be raised.

There remains to explain the absence of the tombstones and the presence of rubbish in the graves. Official documents testify that Spanish soldiers violated the graves which they found and had even utilized a tombstone, by recutting it, to cover the grave of one of their Captains. It is not so astonishing then that here we find several of these tombs which were necessarily filled up with rubbish. On the skull of one of the skeletons there was found a chip bearing the name of a manufacturer of Nuremberg, Germany, and dated 1600. Therefore the glass thrown in with the chip could not have been put in the grave before the beginning of the XVII century and we know that in 1626 these graves were again violated.

FIG. II. TOMB OF THE XI CENTURY

All this would seem to point to the fact that these astonishing discoveries are not so awful as was at first supposed. In spite of all these theories, however, it is difficult to convince oneself that these are the remains of persons who have died natural deaths. It seems incredible that iron bands which encircled a coffin could shrink and bend to such an extent as to fit so snugly across the shoulders and legs. We instinctively compare these with the contents of the grave shown in the Cave de la Torture (The Torture Chamber) of the Château des Comtes.

We shudder at the horrible expressions of anguish depicted on all of the faces and from the wide-open mouths across the silence of the grave their shrieks of agony seem to echo down the ages.

EDINE FRANCES TISDEL.

Washington, D. C.

NORTH SIDE OF THE PLAZA OF MEXICO AT END OF XVIII CENTURY, THE PARIAN BEING S. W. OF THE ENCLOSURE

THE PARIAN

THE name "Parian" was first applied to the part of the City of Manila, separated from the city and surrounded by walls, where the Chinese merchants resided and had their shops; and as there was frequent communication between the Philippines and Mexico during the XVI century, the name Parian was given to the collection of buildings near the center of what is now the Plaza de la Constitución in the City of Mexico, and which up to the time of being so called, was known as the "Tiendas y alcaicería de la plaza mayor," that is, "the shops and market place (for silk) of the main plaza."[1]

The form of this edifice was quadrangular, there being a second square inside the main structure. It squared with the plaza, *i.e.*, the north side faced the Cathedral, the east side the National Palace, the south side the Diputación (City Hall) and the west side the arcades of Los Mercaderes. Inside the inner square was a large open space called "El baratillo grande."

The building measured 95 varas (a vara = $33\frac{1}{3}$ in.) on the north side, 129 on the east, 102 on the south and 132 on the west. The disposition of the shops was as follows: on the north side there were only 4, on the east 14, of which one had 6 doors, 4 had 4 doors and the balance 2 doors each; on the south side were also 14 shops, 2 of them with 4 doors each, 3 with 3 and the one on the corner 2 doors; on the east and west sides were 10 shops, of which 3 had 3 doors each and the balance 2 doors each. Every shop had an upper story which served as a storehouse.

Eight archways gave entrance to the inside shops, 3 on the north and south sides, and one each on the east and west sides.

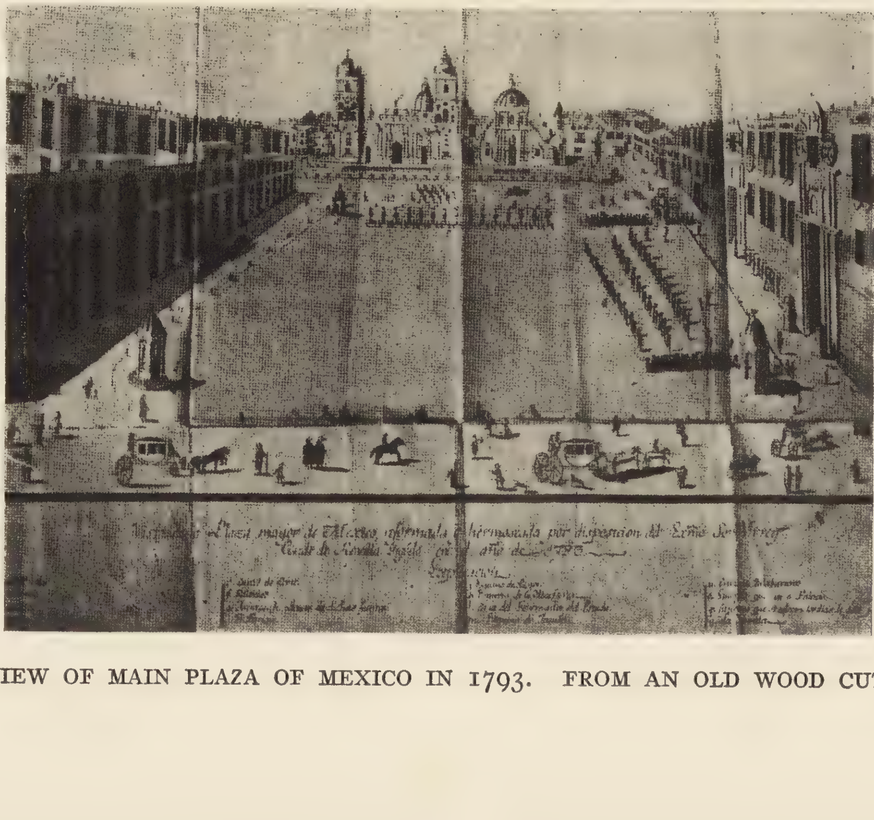
The walls of the building were of masonry and tepetate (a soft conglomerate found in abundance throughout the valley of Mexico) and the roofs and floors were tiled, most of the doors being of cedar.

[1] Alamán, 8th Dis. 241.

THE PARIAN FROM THE WEST TOWER OF THE CATHEDRAL

The original structure, which was of wood of irregular shape, was destroyed by fire November 16, 1658; new shops, however, were built at once on the same site, also of wood. In June 1692, a year when corn and wheat were very scarce, a mob set fire to the buildings and the flames spread to the Palace, the City Hall and to other near-by edifices. Fortunately, the archives of the "ayuntamiento" were saved as was the "Pendón real," the royal standard.

To avoid a repetition of this conflagration the Council decided to build shops of more solid materials, and permission having been secured from the



VIEW OF MAIN PLAZA OF MEXICO IN 1793. FROM AN OLD WOOD CUT

Viceroy, work was begun under the direction of Captain D. Pedro Jiménez on August 8, 1695. By the end of December, 1696, the outside walls facing the Cathedral and Portal de los Mercaderes were finished; three other walls, the outside and inside walls facing the Palace and the interior wall parallel with the Portal de los Mercaderes were completed by December 1699. The outside south wall was finished in April 1703, while the north and south interior walls were built by D. Juan de Dios de Medina in April 1757.

In the inner square of the Parian at one time were a few wooden booths where were sold old clothes, second-hand books, firearms, saddles, trunks, old furniture and a variety of other junk. This was called "El baratillo grande" as already indicated, to distinguish it from the other "baratillo" which was located on the corner of the Cruz del Factor and Canoa streets, a site later occupied by the Iturbide Theater and today by the new national Chamber of Deputies. The "baratillo grande," upon the final destruction of the Parian, was removed to the "plazuela del Volador" where it is to this day, although it is known by the unsavory, but perhaps merited, name of "The Thieves' Market."

During the colonial period and for some years after the Independence the Parian was the scene of the greatest traffic activity in the City. Most of the merchants were Spaniards and in the early days of the XIX century they organized themselves into a military corps called the "Volunteers of Fernando VII," although they were popularly known as "Chaquetas," from the peculiar jacket each one wore. They were the Royalists of a few years later.

It was sacked in 1828 by a mob of Mexicans who were only too glad of an opportunity to let loose their hatred of the Spaniards. Every bit of money and merchandise disappeared. When order was restored many of the merchants refused to return to their shops and opened new places in the neighboring streets.

In 1843, the Parian having lost its prestige, Santa Anna proposed to remove it from the main plaza, with a view to beautifying that central spot and erecting in its center a monument commemorative of the Independence. The remaining merchants protested and they were sustained by the City Council, which derived a large income from the rental of the shops, but all without avail, for on July 24, 1843, the work of demolition began and by September 10 of the same year the last of the rubbish was cleared away.

Orozco y Berra in his article on the City of Mexico in *Dicc. de Hist. y de Geog.* records the following inscriptions on the walls of the Parian:

On the southwest corner fronting the Portal de los Mercaderes:

EYNANDO LA CATH
Carlos II y GovernaN
enDo Correg. D. Carlos

Fronting the City Hall (Diputación):

MAGESTD D (not legible)
Con DE DE GA s Rs (not legible)

DEL POSSO se hizo esta Fabª

Que iDeO executó el Cap. D.PDRO Ximenéz DE los Cobos ReGR.I
Obr^{o} MR.ANO 1695

On the northwest corner fronting the Cathedral:

REYNANDO LA C		
Carlos II Y Govern		
Siendo Correg^{r} D		

Fronting the Portal de los Mercaderes:

MA		T DE N. R. Y. S. D.
Con		e Galve estos R^{s}
DEL		cse hizo esta FA (not legible)

Que iDEO iexecutó el Cap. D.PDRO Ximénez DE los Cobos ReGr.I.
Obr^{o} MR.ANO 1695

On the northeast corner, fronting the Cathedral:

DOCT. D. Iuan		uec (another letter not legible)
endo Correg^{r}. DO		TRISTAN
Pedro Ximénez d		obos (not legible)

Regidor de esta Ciudad y su Obrero maior, Año de 1696.

Fronting the National Palace:

Govern		Oupo VI	
Montañes		poesta qua	
del posso q		do yi dea d	

The blank spaces represent holes made in the walls, thus obliterating words that would make the sentences complete. The explanation of the presence of these holes is not apparent.

City of Mexico. A. L. VAN ANTWERP.

PREHISTORIC BRONZE SWORDS IN SCOTLAND.—In discussing 11 bronze swords of prehistoric times found together in western Scotland, Mr. L. MacLellan Mann says they belong to the most elegant type of Bronze Age weapons, of the III, IV, and possibly V century B.C. They are equal sided, sharp-pointed, leaf-shaped weapons. They are pre-Roman and were succeeded, also in pre-Roman times, by an iron sword with edges parallel almost to the tip of the blade. This was longer than the bronze sword. The bronze weapon involved the highest skill and art in its casting and finishing. The blade was made very keen by being hammered out. Similar specimens are found in England and Ireland, but Continental specimens differ widely. The length varies from 17 to 30 in. Sometimes the hilt is made wholly of bronze, cast one piece with the blade. More often the hilt consists of a flat hilt-plate cast with the blade and originally covered with panels of horn, bone or wood. These panels were attached by rivets of bronze, wood or bone in holes drilled or punched out, or even cast in the hilt-plate.

FIG. 1. GRAVE RELIEF OF A FARMER

FIG. 2. GRAVE STELA OF ARISTION —A SOLDIER

THE BELIEF OF THE ANCIENT EGYPTIANS, ETRUSCANS AND GREEKS IN THE FUTURE WORLD AS SHOWN BY THEIR STELAE, BURIAL JARS AND GRAVE RELIEFS.

Part III

Greek Grave Reliefs

IN OUR study of the ancient Greeks and Romans we find ourselves constantly making comparisons between them and noting their differences. We compare their efforts in architecture and see how the Romans built large walls; arches and domes of concrete of great extent; and we feel compelled to use constantly superlative adjectives which denote greatness, strength and massiveness. We examine the remains of Greek temples and we are amazed at the perfection, the wonderful finish, the smoothness of the joinings in their blocks of marble, the absolutely perfect harmony of dimensions and parts so that the finished building leaves nothing still to be desired.

In literature we feel this difference and say that the one is more prosaic, more matter-of-fact; the other more poetical, more forceful. In one logical clearness abounds; in the other we are impressed by the rhythm, the beautifully flowing sentences. In all our study of these two ancient peoples we see how the one faces the colder, more practical West; the other faces the warmer, more dreamy East.

Nowhere in all that they did can these distinctions be more perfectly discerned than in their method of expressing the finer, the more subtle realities of life. And in all these perhaps there is nothing more noticeable than their expression of grief, sorrow that comes from death of friends.

There has perhaps been no experience which man is destined to undergo which the painter or sculptor has found so difficult to portray as sorrow. Joy, pleasure, contentment, satisfaction or exultation that comes from an Olympic or Delphic victory—yes, all of these can be pictured in the facial expression. But pain, tears, agony, great grief because of the loss of a loved one, oh, there lies the difficulty. You may paint the death scene with the dying man or woman on the couch and on his face death's agony, surrounded by friends with faces drawn and with tears flowing. This has been done. You may portray the grief of one doomed to an untimely death and represent him as endeavoring to get out of his coffin while grim death stand by to push him back in. This has been done. The Greeks did not and would not do it so.

Can one imagine a sadder moment for a father than that moment when Agamemnon the powerful king stands in the presence of Calchas the priest, who with knife drawn is about to slay the much loved Iphegenia, and he is unable to save her? The Greek army on its way to Troy is detained at Aulis by adverse winds. Diana has been grievously offended by Agamemnon who has been so unfortunate as to slay a stag sacred to the goddess. Diana, angry, sends continuous calms that delay the departure of the fleet

FIG. 3. STELA OF HEGESO

and Calchas, the priest, has announced that nothing less than the sacrifice of Agamemnon's favorite daughter Iphegenia will appease the wrath of the goddess. No wonder the brave leader refuses such conditions and declares he will abandon the expedition before he will consent to so fearful an alternative. Other leaders declare that private feelings must give way to the welfare of the state, and although for a long time Agamemnon turns a deaf ear to their pleadings, at last he is persuaded that it is his duty to make the sacrifice. Iphigenia is summoned by her father who alleges that the great Achilles desires her for his bride. Rejoicing that such an honor is destined for her daughter, Clytemnestra the queen, gladly obeys the command and the daughter is sent. Upon her arrival at Aulis the princess finds no such honor awaiting her but rather that she is to be an unwilling victim of a dreadful fate. In her agony of grief, with sobs and tears, she throws herself at her father's feet and entreats him to have mercy on her and spare her young life.

FIG. 4. GRAVE STELA OF AMEIHOKLEIA

Can one imagine a more difficult scene to paint? How shall the artist picture such awful sorrow as must be that of the father? A great king, yet powerless to save his own daughter. Will tears, and the rending of garments and wild cries tell the sad story best? They may tell it but not best. The Greek would not thus portray the father's woe.

We do not ordinarily turn to the wall paintings of Pompeii when we are seeking beautiful examples of the painter's art. We do not study the many frescoes in the Naples museum from an artistic standpoint. Yet there is one picture there, the illustration of this sacrifice of Iphigenia at Aulis, which is certainly true Greek in its conception. Bad in other ways,

FIG. 5. GRAVE STELA OF IV CENTURY

indeed very bad, in one particular it is a masterpiece. Calchas stands with knife drawn, the beautiful girl is held by two attendants, an instant more and the penalty will have been paid, and the father is there. Such grief cannot be told with tears and drawn face. With true Greek feeling, the artist, whoever he was, has caused the father to stand at one side with back partly turned and head and face covered completely with a veil. Such sorrow is too terrible to be portrayed. It cannot be made public. The indication of such awful grief in the Naples fresco is splendid.

In plastic art the Greeks found the noblest method of expressing sorrow. All peoples have used stones to mark the graves of their dead.

FIG. 6. GRAVE STELA FROM PIRÆUS—IV CENTURY

The ancient Egyptian stela, was, as we have seen, an expression of their belief in the future life and of the needs of the departed. These stelæ found their way from Egypt over into Crete. The Greek sculptors saw them and accepted the idea with many modifications. They took the Egyptian stela, with its representation of the door of the tomb and of the occupant surrounded by slaves and a great feast, and made rather a relief which should show a man's business. He represents him as a soldier, a farmer, a sailor, a potter. The Greeks excelled in this sort of sculpture in the IV century before Christ. From the Kerameikos, by the old Dipylon gate in Athens, have come many splendid specimens. The National Museum in Athens contains the noblest examples and these constitute, perhaps, the most valuable part of a museum rich in splendid examples of the plastic

art. They are not the work of the greatest sculptors, but perhaps it was a Scopas who thus takes up the emotional side of art and makes it popular. Up to this time the Greeks had never represented death and they never did represent a dead figure. Such representations are found in the churches of Europe and they are bad. Recall one such in Paris of a dead man who is lifting up the cover of his coffin and trying to get out while death in the form of a grinning skeleton pushes him back. Beauty is a necessary corollary of art and such representations are not beautiful. All men hate death and we do not love to look on its portrayal whether it be on canvas or in stone. The Greek sculptor said death is an impossible theme and would not attempt it. To carve features emaciated with suffering and representing the pangs of death; to represent a face drawn with weeping and covered with tears, that he would not do. But affection, love, sympathy, that is possible, nay more that is the greatest theme and that can be represented.

Let us examine a few of the finer of the Athenian stelæ that we may better understand the thought of the Greeks in this regard. Two of the simplest of these reliefs represent nothing more than full length male figures, one with helmet and spear, the other leaning on a staff and with a dog by his side. Both are very simple, with little modelling and from the standpoint of sculpture there is much that is bad in both. But though the sculpture is bad the art is good because an idea is shown. In each stela a story is told and told simply but well. What are the stories? One was a soldier, possibly of Marathon, for the stela of Aristion (Fig. 2) as it is inscribed, may well date back to 490 B.C. The other was a farmer (Fig. 1). The old man leans heavily on a staff and playfully teases a dog with a splendidly carved grasshopper which he holds in his right hand. The soldier shows no awful wound which caused his death, no evidence of death's agony endured on the field of battle; the farmer shows no trace of sickness or pain. Both stelæ tell simply the occupation of the man. Similarly there may be seen in the ancient burying ground by the Dipylon gate in Athens an equestrian relief of Dexileos, a young Athenian who distinguished himself by his valor in the Corinthian war in the early part of the IV century B.C., and who lost his life in the very midst of the fight. The relief represents him on horseback in the act of striking down an enemy. In the same place may be seen also in situ, the stela of Hegeso, a rich young woman of the same period who is represented at her toilet, attended by a maid (Fig. 3). Most of these stelæ that we are studying were made for families of wealth, and the scene of the lady at her toilet, with her jewel case, is a common one. In the relief last mentioned the maid has brought a jewel casket and Hegeso takes out the jewels one by one and admires them, and, as it were, is about to select the one with which she will adorn herself. The relief figured in our illustration (Fig. 4) is one of the finest of this kind. Every morning it has been this lady's custom to put on her sandals, adorn herself with her jewels and go out for a walk. This relief pictures her as prepared again for a journey but this time it is the long last journey. One maid has run forward, stooped down, and begun to fasten the sandals as has been her wont each morning, when the

mistress reaches forward her hand to her as if to say "Yes once more you may put them on but to-day for the last time. I will not need them again." Another maid has brought, as has been her duty each day, the jewels, but this time instead of admiring all and choosing one she rejects the proffered jewel case and seems to say "Not to-day, I have no further need of jewels, take them back."

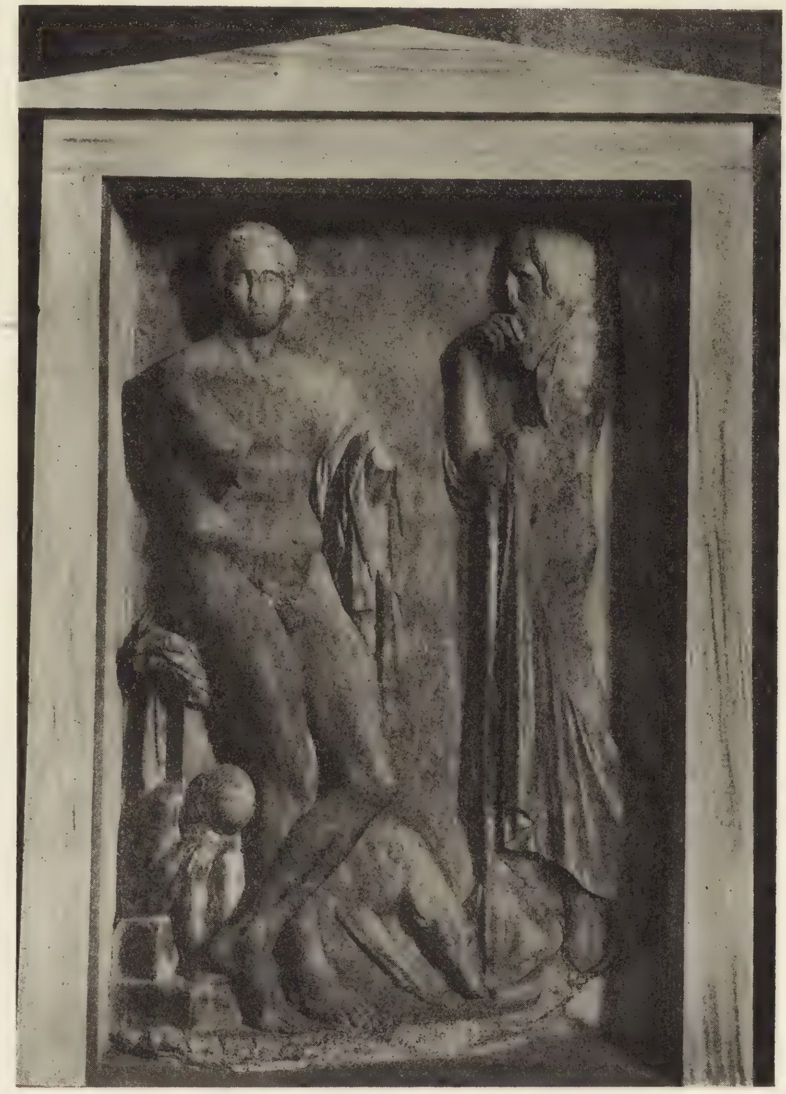


FIG. 7. GRAVE STELA FOUND AT ILISSUS

The most common method taken for the expression of true love and sympathy and grief is to represent the lady who is dead as shaking hands with members of the family and sometimes as giving an admonition. In time of bereavement, to-day, which friend brings to us real help and comfort—

the one who rushes into the house of mourning with many words of sympathy accompanied with many tears, or the one who comes with heart and voice too full of sorrow and sympathy for utterance, but who reaches out the hand and with warm pressure imparts true love and truest sympathy?

How fully these old Greeks of the IV century knew this! One of the finest examples of this class of stelæ we illustrate in figure 5. The woman who is dead stands in front of the seated one. With the left hand she takes not the hand merely, but the wrist of the other, who is perhaps a daughter. With the right hand she tenderly touches the face of the other while she gives admonition about the proper training of the younger girl who stands in the back-ground. Oh, the depth of love and tenderness that goes forth in the simple gesture! But on neither of these faces is there evidence of great sorrow.

One other of this type is so beautiful that it deserves representation (Fig. 6). Here the child is introduced. Here is mystery. The babe tightly wrapped in its swaddling clothes tells plainly that the mother has given her life that the little one might live. With a look of love belonging only to a mother, but with no tears, the babe is tenderly handed over to the sister (or is it to an older daughter?) with the admonition that she look after the rearing of the baby tenderly and well.

There are many such reliefs. There is great similarity in some of them. All are full of meaning. All represent the dead person as doing that which they took delight in when on earth; the little boy rolls the hoop, or plays with his dog. The little girl plays with her bird or her kitten. The man follows the occupation that he loved when alive.

There are two others which are so different and so forcefully tell their story that we turn to them. In figure 7 is represented a nude figure of a young man, in front of whom stands an aged man. This is not the portrayal of the death of an athlete as might at first be thought. Here is rather depicted an allegory. A subtle explanation is required. The youth's garment hangs upon his arm. He has shuffled off the mortal coil, his garment, and thus is death indicated. The attitude of the child and the position of the dog at his feet indicate death. What is the story? An aged father has lost his son. It is an awful thing for a parent to lose his son. It is contrary to nature. The son ought to survive the father. The Greeks felt this keenly. Medea could plan no punishment more cruel for the faithless Jason than the murder of his two little sons. Aged king Evander, who has sent his beloved son Pallas to the aid of Æneas against Turnus thus cries out when he is called upon to mourn over the body of his boy brought back slain in battle. "Thou most holy partner of my bed, happy in thy death, and not to this woe reserved; while I by living on have overpassed my natural bounds to remain a childless father." (*Verg. Aen.* XI, 160.)

So in this relief the father stands very sad, but there is no attempt to represent paroxyms of grief.

There is a second relief (Fig. 8) not unlike this one in that there is a figure of a youth and an aged man. The story, however, differs. Again the son has died before the father. But death for a young man is a great

FIG. 8. GRAVE STELA OF IV CENTURY

calamity, though afterwards welcomed by the aged. Here the son indicates his grief at the calamity which has befallen him in his untimely death. The aged father, though left alone without the strong arm of his son to lean upon, though weighed down with a sense of his own grief, yet does not give way to that but rather tries to offer comfort to the son in his grief.

All of these Athenian funeral stelæ throw side lights upon the Athenian character. Not all are as well done as these we have been examining but there are none common or vulgar.

We should be glad to say the same thing about the Romans, and their thought along this line. Unhappily we cannot. How different was their feeling! How different from the grave stelæ of the Greeks were the hugh stone sarcophagi of the Romans! It was as if when the Romans had conquered the Athenians and had seen their cemeteries with their simple

reliefs they despised their simplicity. The Roman parvenu, desiring to show his wealth rather than his love, built at Rome the great tombs which even to-day remain upon the Appian and other important roads, displaying "his love or his pride." He is now the conquerer of Athens. No simple relief will be sufficient to adorn his family lot in the cemetery. He needs a stone and he orders a great stone sarcophagus. He instructs the sculptor to cut upon it a pretty picture. What shall it be? "Oh, I don't know, anything only let it be showy. Anything so long as it is expensive—a boar hunt, drunken cupids, Bacchanalian scenes—never mind what, a pretty picture" (Fig. 9). It matters not that these scenes are irrelevant; that they have nothing to do with the thought of death or of the hereafter. How terrible the difference! How sad the downfall from the Greek relief to the Roman sarcophagus!

EDWARD W. CLARK.

Rome, Italy.

FIG. 9. A ROMAN SARCOPHAGUS

THE COINS OF ANTONINUS PIUS

THIRD PAPER

TOWARD the close of the year 139 A. D., Antoninus had been Consul Elect for the Third Time, yet it is a surprise to find no intimation of the new honor upon the coins. The Second Consulship had been abundantly heralded and so also shall we find his fourth, but the third seems to have escaped numismatic announcement. We nowhere discover the monetary inscription COS. DES. III. Unprefaced, the coins of 140 lead off with COS. III.

At once a perplexity is opened before us. There were 5 intervening years before the Emperor assumed a fourth Consulship, yet, meanwhile, in accordance with epigraphic canons, he continued to be styled COS. III. This would not be so disconcerting if Antoninus had only felt inclined to designate his Tribuneships, which, of course, were renewed annually and whose number therefore was increased by one each year. But he made no regular practice of enumerating his Tribunicia Potestas until it was time for XI., consequently, with rare exceptions, the coins from 140 to 145 A. D. contain no internal evidence for definite dating until late in 144, when COS. DES. IIII. began to appear. Unfortunately too, very slight extraneous help can be obtained from history or biography, as the reign of Antoninus was a singularly tranquil one for Rome. Little of moment occurred to disturb the general trend. Little else than routine and ritual alone was available out of which to evoke inspiration for monetary types.

The opening of 140 A. D. found Type 7, the shorter legend of 4 names, fully established upon the obverse. As a natural result, the new honor of the third Consulship, together with such other official titles as were selected, gravitated, after the old style, to the reverse. But from this list we are soon to lose entirely the Pontifical title, the infrequency of which during the preceding year has been already remarked. Two additional mintages yet to be chronicled,—and the Pontifex Maximus vanishes from Roman money, not to reappear until after the accession of Marcus Aurelius.

In the face of a decided religious trend, under the influence of which, as we shall discover, Antoninus's favorite type of reverse was that in honor of the various deities, the paradox of the scouted Pontifical title is all the more inexplicable. One might have expected such an attitude from Trajan the warrior or from Hadrian the traveler, but both these Emperors had rarely omitted the title. So bold a departure as wholly to dispense with it, we would hardly have surmised from an Imperator of Antoninus's disposition, whom we are to find veritably 'the Numa of the Empire.' Did some incident occur shortly after the beginning of his administration, leading him to scorn the sacerdotal honor? Was this sincerely plain man above the wiles and devices of the priesthood? Or was this no new sentiment on the part of Antoninus, but a long-established conviction? In the latter event, either the Imperator's attention was elsewhere directed at the outset of his reign, so that his moneyers proceeded without interference, or

else,—and this is more likely, he may have deemed it expedient, for the establishment of his régime, to consent to a short lease of honor for the title.

The two bronze medals now to be mentioned are therefore of considerable interest, in that they contain the rare Pontifical honor. The first of these has an inscription modeled after one of the formulæ of 139:[1]

P. M. TR. P. COS. III.,

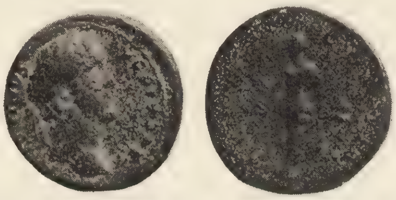
its device placing it with the famous Æneas group. It is the scene which popular fancy elected as allegorizing both the origin of the Roman race and the accepted reputation of the present Emperor,—the escape from Troy, the hero in the act of carrying Anchises and leading Ascanius by the hand.

The second of the two medallions, a fine specimen withal, contains the spirited device of the Emperor on horseback, and the sole inscription:[2]

PONT. MAX.

a type of formula that had not been seen since the days of Otho and Vitellius.

The elimination of P. M. leaves the familiar pair, the Tribunician and Consular titles, expressed variously upon the reverse, according to the abbreviation employed for the former. The type with longer formula for the Tribunician power, thus:[3]



OBVERSE REVERSE

TR. POT. COS. III.,

has more examples. Coin no. 2 of the original group illustrated in the first paper of this series and herewith reproduced, belongs to this type—a type widely employed, embracing issues of every metal and size and numerous devices. The present coin is a *dupondius*, if the laureated protrait can be understood to designate that value of 'middle bronze' at this period of the Empire. The method of minting is suggested in the illustration, for the round rim of the die is clearly shown on the obverse, where it leaves beyond it on the right a margin of something like $\frac{1}{16}$ in. The portrait is thus thrown to the left of the center and the corresponding portion of the legend is crowded quite close to the edge of the coin.

The portrait itself, in right profile and laureated, is excellently well preserved, one of the best in the group.[4] It will be noticed that the adoption of the shorter formula introduces a less rigid disposition of the letters that compose the legend of the obverse. Compactness is no longer essen-

[1] Akerman, p. 262, no. 16.
[2] Akerman, p. 262, no. 18.
[3] Eckhel, p. 16.
[4] Cf. Records of the Past, Jan.-Feb. issue, pp. 24, 25.

tial, as was, for instance, the case with Trajan's legends. Antoninus's formulæ are now very often given almost awkward spacing between words and even syllables, as may be observed in the division of the *cognomen* in coin no. 1 of the group.[4] or of the name PI—VS in the second coin illustrated in this paper. In our present coin, the legend falls into two parts, one on the left, the other on the right, of the portrait. Happily, there is no violent syllabification in this instance—the name ANTONINVS occupying the whole left margin with resultantly neat effect.

The device of the reverse is a draped female figure, standing, partly turned to the left, her left hand clasping and drawing her drapery somewhat tightly to the right across the lower limbs, and extending in her right hand a sprig or twig. The figure suggests the popular allegory of Hope; if so, the object she holds daintily between thumb and finger is a half-blown flower.

Several issues of this same type of reverse-inscription were among the most noteworthy mintages of the reign. One, a gold piece,[5] which may belong to the opening days of the year 140, represents the Imperator driving a four-horse chariot, with two small figures beside him. They are doubtless the cousins, his own adopted sons and successors, Marcus Aurelius and Lucius Verus. Aurelius was now upwards of 20 years old and Verus in his early teens, but both are here given that diminutive size, so familiar in Greek and Roman perspective, with which it was sought to distinguish inferiors in age or station from their protagonists.

Effort has been made to fix this coin as commemorative of the victories in Britain. But, in that case, the device could only be interpreted as indicating a triumphal procession, a suggestion directly refuted by the statement of the biographer, that Antoninus denied himself the honors of a *triumphator*. Moreover, those coins of the reign which signalize the British War usually have a more defining sign, such as the title IMP. II., or some form of the name BRITANNIA, as will be shown in a subsequent paper. Therefore, all that may be said of this coin is that it represents some ceremonial procession of a more ordinary character, perhaps in honor of the new Consulship.

An interesting companion to this last coin is a gold piece with practically the same device, but with the inscription inverted, reading:[6]

COS. III. TR. POT.

This is a unique departure from the customary placing of the two honors, which gave precedence to the Tribunician power. While Antoninus himself seldom departed from the rule, the rare exceptions give added weight to the suggestion that the Emperor, especially during the first few years of his reign, actually did so rank them in his own mind. He was Consul for three terms consecutively. He omitted to number his Tribuneships systematically until 10 had passed. We shall find him for 5 years, beginning with this same year 140, employing legends upon the obverse in which the Consulship appears alone without the Tribuneship, while it was not

[5] Eckhel, p. 16
[6] Akerman, p. 256, no. 12.

until 145 that a similar deference toward the Tribunicia Potestas attained prominence. It was not until the latter half of his reign that a decided change came, when the Consulship ceased to appear alone upon the obverse. Did it mean that the Emperor's earlier convictions were averse to the idea of the Tribunician power? Did he scorn the origin of this honor, which had meant the assumption of the powers without the real name? The old aristocratic Consulship may have meant more to him than the stolen honors of the plebeian Tribuneship. In other words, we may have here added evidence of the Emperor's undisguised and unassuming sincerity,—the same which had prompted him to deny triumphal honors, to decry the radiate crown, and to renounce the Pontifical title.

Returning to the reverses with the more usual inscription, TR. POT. COS. III., there was one notable coin in gold,[7] representing the Emperor seated on an estrade, or raised tribunal, surrounded by attendants, with two figures below, the latter evidently representing the populace. The coin was doubtless some memorial having reference to the judicial and administrative duties of the Imperator.

The impossibility of giving chronological classification to the majority of the mintages now under discussion is somewhat compensated for by the realization that, during this otherwise colorless *quinquennium* of the third Consulship, Antoninus came at last to develop his true ideals in coinage, only slight evidences of which, it must be confessed, had been particularly apparent thus far. Aside from the rather interesting disposal of his personal names in the longer legend and his later persistence in the shorter name, Antoninus's coins had hitherto displayed no very marked individuality. There is room even for a charge of indifference or, at least, of inattention. We must, however, remember, before passing judgment, that Antoninus had little more than fulfilled one year since the Principate had been thrust upon him by the terms of his adoption. It may be well questioned whether the new Imperator, amid the press of state business, had as yet been privileged to devote any large amount of time to numismatic duties. For instance, the successive acquisitions, decidedly important ones at that, of Pius and Pater Patriæ had for some time been merely appended, as severally decreed, to the stereotyped coins of previous issues, and, to aggravate the case, had been placed upon the reverse. And as for the inscriptions of the reverse, with an exception or two, these had mainly been of the more prosaic type, the recapitulation of civic and religious honors in the order of preferment and award.

The Senate too, if indeed that body had been independent in its mintages, while displaying a greater variety in designs and, perhaps, truer adherance to the canons of etiquette as regards the disposal of certain titles, had chiefly plagiarized the issues of previous reigns. Such, for example, were the so-called 'geographical' bronzes, which were, in great part, modeled after Hadrian's 'Provinces' and the LIBERALITAS, which but repeated the CONGIARIA of former Princes. But, on the other hand, it was a bronze medal that had published the brilliant metaphor of Antoninus as 'The Pious Æneas', a splendid compensation for all the replicas.

[7] Akerman, p. 258, no. 50.

But, from now on, we are to witness greater variety, more originality, and, latterly, a decided individuality in taste and selection. It is indeed a most significant fact, that no era in the chronicles of the Empire could have been more admirably adapted to display the style of man than that which had now dawned upon the Roman world. A man of peace in times of peace,—no serious wars to disturb the general tranquillity,—no political broils to harass a perfect equilibrium,—harmony, contentment, prosperity prevailing for a quarter of a century,—such were the conditions under which the coinage of Antoninus Pius was evolved. Time and the man were in full cadence. The man was given uninterrupted opportunity to pursue his own proclivities. And so, the types of money which now began to appear were beautifully consistent with the Imperator as a man.

Moreover, if all the other records of the reign were wanting, if the annals of Cassius Dio, the *Augustan History* of Capitolinus, the *Meditations* of Marcus Aurelius had all gone the way of Livy's lost 'dekads' or of Calvus's lamented lyrics,—still we should have sufficient testimony in Antonine's coins, when read in the benignant light of his portrait busts, from which to reconstruct his life. And it is from his coins struck during these 5 years of his Third Consulship,—perhaps his first period of real complacency after mastering the details of Empire, that we can read what style of man was this Titus Ælius Antoninus.

He was Pius truly, in that more modern, more extended connotation of the word, 'Pious.' But just here, one of those strange lapses in biography, one of the 'sins of omission' of which the historian is sometimes guilty, is detected through the science of numismatics. One lone anecdote from the rambling pen of Pausanias the Periegete, one solitary inscription garnered by Fabretti, were all that had borne stinted testimony to a neglected phase in the comprehension of Antoninus's true character,—the peculiar trend of his religious observances. It was particularly the 'old-time religion,' the worship of the heroes of the nation's infancy that fascinated him, the cults that were cherished out in the hills and in the by-ways, the rituals that survived only in folk-lore and in cob-webbed corners of ancient libraries. Apollo in his Palatine courts, Venus and Rome in Hadrian's new wonder on the Velia, the lordly Triad of the Capitolium, the newer mysteries of Isis and Mithras—none of these so appealed to the Antonine as the fast-disappearing names that had prevailed when Tatius and Numa were Patriarch and Pontiff. Deities whose shrines were woe-begone pictures of deserted sanctity, whose images were dust and whose *pulvinaria* the haunts of stork and crow,—divinities whose very names were obsolete and involved problems in etymology and orthography,—were elicited from the shades of forgotten centuries and now given a place on the national currency. Thus it is, that the antiquities of Vergil and Varro and Dionysius are often and again intelligible through the aid of a medal or 'first brass' whose obverse carries a talisman in the name ANTONINVS.PIVS. Our knowledge of Roman religion would be crippled without the commentary afforded us in the coins of this reign, while such works as the '*Fasti*' of Ovid are vivified by the illustrations derived therefrom.

Victories and Provinces, Donatives and Armies, Fortunas and Adlocutions, Consecrations and Providences, Expeditions and Returns, Vows and Remissions, Restorations and Constructions, Decrees and the Giving of Kings, all sorts of Romas and S.P.Q.R.s and abstract Virtues, had hitherto thriven on the Imperial coinage; but, never before, as in one mighty Pantheon, had the Roman world beheld such an array of Gods and Goddesses, Demigods and Deifications, as began now to be scattered broadcast in the coins of Antoninus Pius.

Such, to enter more explicitly into the catalogue, were a 'first' and 'second brass'[8] with the same short formula of 4 names upon the obverse and the quite frequent TR.POT.COS.III. upon the reverse. Its device was the double-faced Janus—'Janus Bifrons,' as the Romans styled him. Though there can be no clue now as to what particular year within this period the coin belongs, this figure of the primitive god standing, with spear in his right hand, the god of beginnings, from whom January itself took its name, may well have been assumed by Antoninus as typifying, not merely the beginning of the new year, but,—a matter of much greater moment, the inaugural days of his Third Consulship. Janus was altogether appropriate too as a herald of that procession of gods and goddesses that accompanied him. In the old Republican days, he had been as familiar a figure on Roman money as was recently the Indian head on American pennies; but, since the adoption of the new currency under the Principate, he had been almost forgotten, until first Hadrian and now Antoninus in imitation placed him again in every one's hands. With Antoninus, it was undoubtedly an example of that antiquarian enthusiasm which was so to color his money throughout his whole reign.

But, even if bi-frontaled Janus were not the herald, the splendid procession of the deities and heroes had started. Antoninus's coins became a novel sort of *lectisternium*, in which the gods were veritably couched within the palms of the Quirites and the heroes within their calling. Antoninus, with the Senate as close second, seemed now to be designing coins from the open Æneid or Livy's first dekad. No better commentary was needed.

Still with the inscription TR.POT.COS.III., a gold piece[9] began at the very fountain head of the story, the Æneas-myth,—only it was the simpler device of the flight from Troy, the one group only, Æneas with his father on his shoulders and his boy by the hand.

A favorite coin,[10] issued first in gold and silver and copied by the Senate in 'middle bronze,'—all of them with the legend of 4 names on the obverse and the Tribunician-Consular formula on the reverse, though the gold issue had TRIB. instead of TR., pictures 'Mars Auctor,' spear in hand and shield on arm, descending from the skies on the left, while, on the right, below, Ilia, 'princess and priestess,' lies sleeping. It is a detail of the same scene so recently unearthed from the lava of Herculaneum. It

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[8] Eckhel, p. 16; Akerman, p. 269, no. 45, and p. 271, no. 22.
[9] Akerman, p. 259, no. 51.
[10] Eckhel, p. 31: Akerman, p. 259, no. 52; Plate vi, no. 10; and p. 271, no. 23. Duruy's *History of Rome*, vol. i, p. 141, also reproduces the gold coin.

is all the poets from 'Father Ennius' down, compressed upon a piece of money. It is the genesis of the Roman race, as eloquently told as by Dionysius himself.

Some silver pieces of the same legend and inscription, imitated in 'first' and 'second brass,' of several styles of both obverse and reverse, were souvenirs of the Lupercalia.[11] In some, the historic cave was distinctly shown, but, in all, the wolf was depicted, nursing Romulus and his twin. In some of the bronzes, there was an added detail,—a diminutive shell-like boat in the lower foreground,—the 'basket' in which Ilia's boys were exposed to the mercy of 'Father Tiber.'

And here, on a 'second brass,' surrounded by the inscription:[12]

TIBERIS.TR.POT.COS.III.

i.e., the same inscription with TIBERIS prefixed, is 'Father Tiber' himself 'to whom the Romans pray.' Practically the same attitude is repeated on a 'first brass'[13] and on a brass medallion,[14] though both these latter omit the honors, having simply TIBERIS. The venerable river-god who aided Æneas in his quest, fathered the twin-boys of Mars, and received to his bosom the hapless mother, is represented, to quote Stevenson,[15] "seated on the ground,—his right hand placed on a boat, and his left, reposing on an urn, holds a reed."

An interesting variant in the inscription of the reverse was its reduction to the simple COS.III., a favorite apparently, despite the fact that, with an obverse of Type 7, the Tribunician title was thus expunged from both faces of the coin. There was a medallion,[16] reproduced also in a bronze of the smallest size,[17] having this style of reverse, but retaining the same formula of 4 factors on its obverse, whose device, replica of a coin of Hadrian's was, so to speak, a metonomy of the Capitolium. The three birds that were sacred to the three several deities, were arranged in an order that was significant of their respective rank and the relative position of the cellas in the temple itself. Jupiter's eagle occupied the center, while Minerva's owl stood in the place of honor on the king-bird's right, with Juno's peacock on his left. A coin is thus found to be corroborative of the rather scant literature upon the subject,—that Juno was ranked below the helmeted goddess. No wonder there was irony in her voice when she exclaimed:[18]

> 'Ast ego quae divom incedo regina Jovisque
> Et soror et coniunx—.'
> [But I who move Queen of the gods, Jove's sister
> and his spouse.—Cranch's translation.]

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[11] Eckhel, p. 31; Akerman, p. 259, nos. 53 and 54.
[12] Akerman, p. 271, no. 21.
[13] Akerman, p. 269, no. 43.
[14] Akerman, p. 262, no. 22.
[15] Stevenson, p. 792.
[16] Stevenson shows a cut, p. 487.
[17] Eckhel, p. 33; Akerman, p. 272, no. 4.
[18] Vergil, Æneid, I, 46, 47.

A bronze medallion,[19] one of the large kind with a wide circle, and having COS.III. for its inscription, depicted Æsculapius, the god of medicine. A 'first brass'[20] with this same COS.III. represented the Emperor, again seated on an estrade, flanked by other figures, much as on a coin previously described in this paper,[21] and here interpreted as the Prætorian Prefect and the personification of Liberalitas; a figure clad in the toga stands below, the whole seeming to represent an act of public beneficence. Another 'first brass'[22] with like inscription had for its device 4 infants, representing the 'four Seasons.' A 'second brass'[23] shows 'the infant Jupiter riding on a goat,'—a suggestion of the myths of Amalthea and the Curetes.

This same COS.III., by reason of its brevity, was a favorite inscription for 'third brasses.' Of these there were several,—one[24] showing a 'modius, containing several ears of corn',—another[25] 'two capricorns, on a globe.'

On page 64 of Stevenson's *Dictionary of Roman Coins* there is reproduced and described, after Pedrusi, the reverse of a most interesting bronze medallion which may belong here. It presents Apollo with several of his attributes. The god, standing and facing us, occupies the center of the medal, his *pallium* clasped on his right shoulder but hanging down his back. His bow is held forward in his left hand, while his right seems to grasp the thong of what may be the quiver resting loosely on the ground. A dead serpent lies coiled in and out of a tripod on the right,—all certainly proving that it is Apollo, the slayer of the Python, who is here commemorated. A table on the left, *i.e.*, on Apollo's right, has a vase upon it, while a tree that rises behind it and throws out a long branch over Apollo's head, has the god's sacred bird, the crow, perched upon one of its branches. The inscription on the right, gracefully corresponding to the tree on the left, is a decidedly unique one, reading:

TR.POT.IIII.COS.II.

It would be an interesting one, if only for the fact that it is one of the rare instances wherein Antoninus numbered the Tribuneships of his first dekad. But, unless there was some error in the original die, or in Pedrusi's copy, or in Stevenson's transcript, the formula is inexplicable. Antoninus's first Tribunicia Potestas, as we have seen, was conferred upon him at the time of his adoption. In November of that same year, 138 A. D., a few months after his accession as sole Imperator, he began his second Tribuneship, following the practice, throughout the remainder of his reign, of renewing the TR.P. annually on that same date. A glance at the table below will at once reveal the impossibility of a combination of title such as that expressed on the coin.

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[19] Akerman, p. 260, no. 5.
[20] Akerman, p. 267, no. 14.
[21] Cf. p. 216.
[22] Akerman, p. 267, no. 15.
[23] Akerman, p. 270, no. 7.
[24] Akerman, p. 272, no. 2.
[25] Akerman, p. 272, no. 3.

July, 138	TR.P.I.	COS.I.
November, 138	TR.P.II.	COS.I.
January, 139	TR.P.II.	COS.II.
November, 139	TR.P.III.	COS.II.
January, 140	TR.P.III	COS.III.
November, 140	TR.P.IIII.	COS.III.

An error in one of the numerals is obvious, more probably in that of the Consulship, for the closing strokes of an inscription are often vague, while the central lettering, even when indistinct, may frequently be conjectured by reference to the space occupied. The formula here is very probably meant to be:—

TR.POT.IIII.COS.III.,

a dating which could fall as early as November of 140 and anywhere before November of 141.

It must be reiterated, that the coins of the third Consulship thus far detailed, were, in general, those that had the simple legend of 4 names upon the obverse,—Type 7. But reference to the tables given in the second paper of this series[26] will show that there were several variant types of the obverse, employed contemporaneously with those of Type 7, one of which, Type 8, had been introduced during the year 139 and was now to assume a preponderating importance. Five others, Types 10-14, were inaugurated and flourished during the *quinquennium* of the third Consulship, one of them, Type 14, being destined to survive the others and run parallel with Types 7 and 8 for several years into the Fourth Consulship.

Of the four types which were essayed during these 5 years only, but which apparently did not again come into use, two, Types 12 and 13, seem not to have obtained the popularity of their contemporaries, and, by reason of their rarity, may be despatched at once. The first of these, Type 12, which was probably employed in silver coinage only and has been found with laureated protraits alone, was denoted by the mere addition of COS.III. to the shorter formula (Type 7), with this resultant legend for the obverse:[27]

ANTONINVS. AVG. PIVS.P.P.COS.III.

The second, Type 13, used only in the large bronze, and also belonging to the purely laureated variety, exchanged the position of the two last titles, inserting COS.III. before P.P. and reading thus:—[28]

ANTONINVS.AVG.PIVS.COS.III.P.P.

Type 13 was thus the only formula as far as employed by Antoninus, which separated PIVS from P.P. on the same face of the coin, though there were occasional mintages, as already witnessed in the discussion, in which the two titles were divided between the two faces.

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[26] Cf. Records of the Past, Mar.-Apr. issue, pp. 85, 86.
[27] Eckhel, p. 12, C.
[28] Eckhel, p. 12, D.

Both these latter types are rather interesting, in seeming to voice the attitude which the Emperor at this time may have entertained toward the Consulship, for both obtained their legends by appending or interpolating the Consular title alone, a distinction which Antoninus did not accord the Tribunicia Potestas, after its first uncertain use in 139, until 148 A. D., when, as our Type 9, it became popular.

A third type that was peculiar alone to the period of the Third Consulship was Type 10, distinguished as the shortest of all the new styles, the formula which dispensed with P.P. upon the obverse and thus read:—[29]

ANTONINVS.AVGVSTVS.PIVS.,

and even this was sometimes shortened by the abbreviation of the second title to AVG.[30] It was an infrequent type, though the few coins that belong to it are among the most famous of the reign. As might at once be conjectured, the Pater Patriæ was too precious a title to be lightly omitted and its absence from the obverse was compensated for by the ranking position on the reverse. Thus was evolved an inscription for the reverse reading:—

P.P.TR.POT.COS.III.

The most popular coin that passes under the name of Antoninus Pius, if the number of reproductions in current literature can be taken as a criterion, though it is of course the device of the coin that has caused its popularity, is a bronze medallion[31] of this last-named Type 10 and with the last-mentioned inscription on its reverse. It is the oft-recurrent group of figures in the act of flight from Troy,—the 'eugenics' of Rome, already noted as a favorite theme on Antonine's coins and the sterotyped allegory of the Emperor's own 'pietas.' Æneas is depicted as a typical war-clad figure of the Imperial age—his cuirass and *paludamentum* and beard rather suggesting that a portrait of Antoninus himself as 'Feldherr' is here really intended. He strides to the right, but looks back to the left, grasping the boy Ascanius not by the hand, but high up by the arm, as if thus to facilitate the little fellow's 'unequal strides.' The aged Anchises, with a cloak drawn over his head, is perched upon the hero's left shoulder, steadying himself by resting a hand upon his son's other shoulder, for in his own left he carries a casket, containing, perhaps the Penates, but hardly the Palladium, of Troy.

The reverse, in all its details, was a duplicate of the gold piece already described in this paper,[32] in which, however, the inscription was not introduced by P.P., but by P.M., for the gold coin belongs to Type 7, wherein P.P. was a regular part of the obverse legend. These two were again replicated upon a 'first brass,' only the inscription here reads:—[33]

TR.POT.COS.III.P.P.

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[29] Eckhel does not list this style of obverse.

[30] Akerman, p. 254.

[31] Ramsay and Lanciani's *Manual of Roman Antiquities* gives a cut of this entire coin; p. 467; Stevenson, the reverse only, p. 16; cf. also Duruy's *History of Rome*, vol. i, p. 140.

[32] Cf. *p.* 216.

[33] Akerman, p. 269, no. 44.

It is a formula that seems to stand alone, for no other has been found to correspond. After the persistence with which the Senate had resisted Antoninus's own wayward practice of treating P.P. as an appendage of the reverse, this exception is decidedly interesting.

Type 8, the variant introduced during the previous year by the addition of both the civic honors, the former without numeral, although it had but a modest reception during 139, came to supersede even the shorter formula in frequency and popularity. By far the most interesting coins of the entire Third Consulship are with the obverse legend:[34]

ANTONINVS.AVG.PIVS.P.P.TR.P.COS.III.

These continued the old alternate system of portraiture and were in all metals and of every size.

An advantage was at once imparted to the reverse. It will have been noticed that the natural result of the exclusion of official titles from the obverse, as in coins of Type 7, was the evolution of a reverse-inscription which counterbalanced these omissions. The reverses, therefore, which have thus far been detailed, have contained those official honors in part, or *in toto*, or in combination with other matter. But those variants of the obverse which assumed some or all of the official titles, left greater liberty for the reverse. The latter, accordingly, was no longer obliged to carry such formulæ as TR.POT.COS.III. or COS.III. alone. Device and inscription could now correspond, for, when the burden of titles had been thrust, as formerly, upon the reverse, the device was left to tell its own story. That story was no doubt intelligible always at the period of its coinage, but often the full import or even the proper ascription of name has quite eluded us of this latter day. With the removal of the official titles to the obverse, we shall find the device of the reverse interpreted for us in the inscription. Allegorical figures, personifications, and deities are thus formally introduced to us and not made to depend upon an emblem or attribute which time has perhaps erased from the coin.

Thus, in both silver and gold,[35] and reproduced upon the 'first brass,'[36] with, of course, the addition of S.C., stands Actian Apollo, in his feminine robe, with the sacrificial *patera* in his right hand and the lyre in his left. But, even should the lyre have escaped us, there is the inscription to put us aright:[37]

APOLLINI.AVGVSTO.

'To Augustan Apollo.' This is not the ordinary Apollo, but, true to Antoninus's patriotism and antiquarian spirit, the Apollo who stood upon the prow of Octavian's ship at Actium and was thereafter incarnated, as it were, in the Augustus himself.

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[34] Eckhel, p. 12, A.
[35] Akerman, p. 255, no. 2.
[36] Akerman, p. 266, no. 4.
[37] Eckhel, p. 13.

Without the aid of the inscription:[38]

OPI.AVG.,

'To the Augustan Ops,' we might fail altogether to recognize the ancient goddess Ops in the figure of the seated woman, holding a spear in her right hand, and with her left hand upraised to her head. Ops, Saturn's queen in the 'Golden Age,'the personification of wealth, prosperity, and felicity, and identified with 'Mother Earth,' was a particularly happy device for Antoninus Pius. Truly was she 'Augustan Ops,'—the Emperor's presiding genius. So Ops appeared upon the Imperial silver money[39] and the Senate reproduced the device upon the 'first brass.'[40]

A third title in which was included the adjective 'Augustan' or 'Imperial,' and expressed, as in those just given, in the dative case, was:

ROMVLO.AVGVSTO.

By this epithet, Antoninus himself is thought to be meant,—another Romulus, the Augustan Romulus, re-founder of Rome in prosperity, in the restoration of the old order, in the revival of the old gods, and the reconstruction of ancient history. Romulus Augustus, a military figure striding to the right, with spear slanted forward in the right hand, and a trophy, perhaps the 'spolia opima,' over the left shoulder, was expressed first in gold[41] and thereafter in 'first'[42] and 'middle brass.'[43] There were also coins[44] of the latter denomination belonging to our Type 7 which had this same device of the Imperial Romulus, though attended by the inscription appropriate to the reverses of that type.

Among the ancient cults that found reverential commemoration on the coins of the reign was that of Juno of Lanuvium, of especial interest to Antoninus because he had been born in his father's villa in the vicinity of this Juno's famous shrine. The Emperor remained true to the ancient deity of his boyhood and there is even record of his having built or restored a temple to her during his Imperium.

IVNONI.SOSPITAE,

'To Juno the Preserver,' on the 'large bronze,'[45] expressed a genuine and sincere reverence. The goddess looks every whit able to act the "Preserver," for she stands like the Athene Promachus of the Acropolis, with shield on arm, lance poised, helmet of a goat-head with horns, and the serpent upraised at her feet.

A medal[46] of this same type of obverse, Type 8, told the sacred legend of how Æsculapius came to Rome—"the only production of the Roman

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[38] Eckhel, p. 15.
[39] Akerman, p. 257, no. 37.
[40] Akerman, p. 268, no. 27.
[41] Eckhel, p. 15.
[42] Akerman, p. 268, no. 32; Stevenson, p. 699, shows a cut.
[43] Akerman, p. 271, no. 16.
[44] Eckhel, p. 15, *fin*.
[45] Eckhel, p. 14; Akerman, p. 267, no. 23.
[46] Eckhel, p. 32; Akerman, p. 260, no. 1; Stevenson, p. 20, shows a cut.

mint, in which the *name itself* of Æsculapius appears" on the exergue. The scene is a most lively, realistic one,—the moment when the huge serpent makes its escape from the galley to the Island in the Tiber. The river-god is splendidly represented in the immediate foreground, reclining his left arm on an urn from which flows the stream to the left. He lifts his right arm in salutation or surprise toward the scene being enacted before him. A galley is just emerging from under the Sublician Bridge, two arches of which are shown. A diminutive figure on the galley, standing just beneath the arch of the bridge, lifts hands too in horror—for the great serpent, in immense coils, is leaping from the deck of the trireme to the Island. A tree and a building are shown on the Island, doubtless representing the Hospice-Temple afterwards erected there to the God of Healing.

A favorite hero with Antoninus, perhaps second only to Trojan Æneas, was Hercules. Medallions, especially, in his honor were issued with great frequency throughout the entire reign, and these lacked only a little of expressing *in toto* the life and labors of the giant. Many of them are without date, but the earliest that possesses a date is a medal[47] of the same type of obverse to which these last coins belong, *i.e.* Type 8. The reverse is without inscription. What need to label the familiar hero with the club and lion-skin? Any Roman lad, under any Orbilius, could conjure up his Æneid to word the picture here given. The country-side is represented as flocking to do homage to their saviour. They are bending to kiss his right hand, which the hero, while still resting it upon his club, graciously extends toward them. The Nemæan trophy hangs carelessly over his left arm. Behind him—he is evidently in a rugged wild-land, as is shown by the gnarled tree-limb and the rocks and cavern,—lies the hideous Cacus, whom he has just slain. The medallion is a fitting rebus to old King Evander's account of that mighty conflict on the slopes of Aventine.

And here, on another bronze medallion[48] of the same type of obverse, though without inscription upon the reverse, is the Graeco-Roman interpretation of Genesis,—the story of creation. Prometheus is seated on a rock, in the process of moulding the man. Pallas-Athene, close beside him, is leaning against a tree, around which her sacred serpent is entwined, and places upon the head of the new creation a butter-flymoth, indicative of the soul.

The 'Lays of Ancient Rome,' whether of Livy or Macaulay, would be deprived of a star-witness, were we to lose the famous medal[49] inscribed with the one eloquent word:

COCLES.

The scene lives before us—for there is the broken bridge above, with groups of armed men, the Romans on the one side, one with an ax, in the act of cutting away the structure, and the soldiers of Lars Porsenna on the other, while in the foreground Horatius Cocles battles with the waves.

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[47] Eckhel, p. 29; Akerman, p. 264, no. 45; Stevenson, p. 455, shows a cut.
[48] Eckhel, p. 34, Akerman, p. 263, no. 38.
[49] Eckhel, p. 32; Akerman, p. 260, no. 3; Duruy's *History of Rome*, vol. 1, p. 176, shows a cut.

Coin no. 3 of our group, a cut of which is here inserted, will exemplify the money of Type 8. It is a *sestertius*, or 'large bronze,' having on its obverse a rather clear portrait of the Emperor in right profile, laureated. The crown of the head and the tip of the laurel wreath are allowed to divide the name PIVS into its syllables, a noticeable feature in coins of Antoninus where PIVS thus comes at the top of the circle. The space between the I and the V is here almost ½ in. in extent.

The device of the reverse, as confirmed by both the accompanying attributes and the surrounding inscription:

ANNONA.AVG (vsti),

is the personification of Annona, which, by the aid of much circumlocution, may be defined as the care exercised by the Emperor in regulating the corn-market of Rome and in fortifying the capital against scarcity or famine. The goddess,—and we can only appreciate the deification of such an abstraction when we recall the absolute dependence of the proletariat at Rome upon the liberality of the Princeps and the certain importation of grain from Sicily or Africa or Egypt, and, on the other hand, the panics that became history in the event of a failure in the regulation of the supply,—Annona is here represented in a standing posture, her left arm supporting a cornucopiæ and her right holding two ears of corn over a measure, 'pressed down and running over,' for 3 ears are protruding and falling over the top. The folds of Annona's garments are partially lifted by the arms, spreading them as a gracious background behind her.

The present coin is a happy refutation of a sentence to be found on page 50 of Stevenson's *Dictionary*. A commentary upon a coin of Ælius Caesar, Antoninus's predecessor as heir apparent—a coin with the same inscription, ANNONA.AVG., is followed by the remark:

> It seems strange and unaccountable, that, whilst a coin with the above reverse should have been minted at Rome in honour of this indolent Prince, who did not live long enough to become Emperor, there appears to have been no similar legend struck on coins of such men as Antoninus Pius and M. Aurelius, of whom history attests their vigilant care for the public sustenance.[50]

University of Oregon. FREDERIC STANLEY DUNN.

OBVERSE REVERSE

[50] Doubtless such coins of Antoninus are not infrequent, though confirmation is missing in Akerman's Catalogue also. In the *St. John's College Quarterly*, already referred to in these papers, as high as three ANNONA coins of various types are listed in a group of 20 of this reign.

CUT ACROSS CROCKER MOUND OF THE HUNTER'S POINT PENINSULA, SAN FRANCISCO

SHELLMOUNDS AT SAN FRANCISCO AND SAN MATEO

THE Anthropological Department of the University of California has continued during the winters of 1909–10 and 1910–11 the exploration of shellmounds on the shores of San Francisco bay which it began to examine systematically some years ago. As all carefully conducted excavations in the past had been made on the eastern shore of the bay, in the vicinity of Berkeley, Oakland, and Richmond, it was decided to give a wider outlook to the work by pursuing operations on the western shore, both north and south of the Golden Gate. In 1909–10, three mounds in Marin county, from 7 to 18 miles north of San Francisco, were opened. In 1910–11, two mounds on the same side of the bay, but on its southern arm, were explored. One of these was within the city limits of San Francisco, the other at San Mateo.

Both expeditions were in charge of N. C. Nelson of the staff of the Anthropological Department. The excavators consisted of university students, so that care in the work done and accuracy in the data determined were insured.

The artifacts obtained agree closely on the whole with those previously secured on the eastern shore of the bay. Several interesting differences were found, such as that net sinkers are relatively less abundant and projectile points more profuse in Marin county than in the vicinity of Berkeley.

Such distinctions may however well be due to the varying effect of local environment, which rendered it more profitable for the inhabitants of one locality to be hunters and in another spot to pursue fishing as their main occupation. At San Mateo a number of specimens of a distinct type of oval mortar were found, which has heretofore not been known from the bay region. As yet however nothing has been discovered which can be positively considered as evidence of a special type of culture in the several localities. This fact accords with the circumstance that while the upper strata of all mounds are the richest in remains, and particularly in those of a more finished or elaborate character, no essential change of culture has been encountered as excavation proceeded downward in any one of the mounds. In short, there seems to have been a gradual but slow and uniform development of civilization more or less common to the entire region, and merging into that of the Indians inhabiting Central California in the historic period.

This conclusion is corroborated by the anatomical remains. While it has not yet been possible to study those most recently collected, a preliminary examination indicates that they are of the same type as the skeletons previously discovered on the east side of the bay. This similarity further holds for all depths of the mounds, so that a single race of shellmound builders is almost certain.

As regards the age of the remains, careful examination reveals in almost every instance that the base of the shell deposit is at least a few feet below the present mean water level, and in some instances considerably more. Considered together with the size of many of the mounds, as well as other evidence, this fact appears to confirm the conjectures already made as to the age of the shellmound culture of San Francisco bay, and makes more probable the estimate of Mr. Nelson that the beginnings of at least some of these deposits must be placed in a period three thousand or more years ago.

The University plans to continue its explorations until the extreme southern, northern, and eastern arms of the bay, as well as part of the ocean shore in the same latitude, shall have been included. As more than four hundred existing or former mounds have been located on the bay shores alone, the field is a rich and promising one.

A. L. Kroeber.

University of California.

ARYAN ORIGIN OF THE AZTECS*

THE question of the origin of the American Indians has baffled Ethnologists, Archæologists and Philologists for 400 years. Many attempts to penetrate this mystery have been made and all heretofore have failed. Humboldt tried to make something definite out of the Calendar of the Aztecs. He compared their signs of the Zodiac with those of various Asiatic peoples and found some significant things but nothing conclusive. Viscount Kingsborough spent much time and an enormous sum of money in attempting to show that the Aztecs were really the Lost Tribes of Israel. For this, he has been very unfairly ridiculed. His magnificent work *Mexican Antiquities* in 5 elephant folio volumes was a wonder in bookmaking with its copious texts and wealth of illustration in black and in colors. The proofs of my proposition involving 7 years study are too long and involved for me to give even a readable synopsis here. I shall ask the reader to take my word for it or refer him to my printed books.[1]

Language is, in my opinion, the only medium capable of proving accurately the genetic relationship of two peoples widely separated for a long period. I have relied chiefly on language, though mythology, religion and customs confirm my work. I am sure of my position. I am able to say beyond the possibility of mistake that Nauatl, the language of the Aztecs, is Aryan and very closely allied to Sanskrit. But the average reader may be inclined to say: I wish you could let me into at least a little of your method. I should like to know how you can be sure of something that goes back from 3000 to 5000 years and is based simply on words. I will give here a few elementary principles which anyone can understand. The Aryan languages: Sanskrit, Greek, Latin, Lithuanian, Armenian, Keltic, Slavonic, Germanic, including English, have a very definite system of phonetic changes by which a word may be traced through the group, that is, in as many languages as it occurs. No word perhaps occurs in *all* of them. If it occurs in two or three, it is considered established especially if one language is *Eastern* and the other *Western*. Take *cow* for example. The primitive language had *gau*; Sanskrit, *gó*; German, *kuh*; English, *cow*; but Greek boũ-s and Irish bō; why was the Greek word boũ-s? The Irish bō? Because after *k* and *g* a parasitic *u* or *w* sometimes intrudes. Thus kow, kwou, and from this semi-labial *w* to *b* is an easy transition, *k* or *g* disappearing in the process of labialization. To illustrate this change in imitating a dog, we say: "bow-wow" where logicially we should say "bow-bow."

The old root *ruc* means light; Greek, leukós; Latin, lux; German, licht; English, light. The liquids *r* and *l* are interchangeable. From this same root we get in Sanskrit *roca-ná*, upper region of light (heaven). The Mexican (Aztec) word for this is i-lhuica-tl, heaven (pronounced looic).

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[1]*Mexican in Aryan Phonology*, (*1907*); *Primitive Aryans of America*, (*1908*); *Mexican Aryan Comparative Vocabulary*, (*1909*); *Morphology of the Mexican Verb*, (*1910*); *Mexican Sibilants and Noun Endings*, (*1911*).

*We regret to announce the death of the author, Mr. Denison. on April 7, 1911.

In this sort of work *meanings* are very important. They must be *close*. The root *tul* (or *tol*) meant to *balance*, as a weight, and to *bear* in the sense of suffer, endure. In Sanskrit, toláyati means he balances or weighs, in Latin, tuli, I bore; in Greek, tâl-os, means wretched, in Scotch the meaning to suffer coincides with the Greek and Mexican, as in Burns:

"To *thole* the winter's driving blast."

The Mexicans called a certain Spanish Friar "Tolinia" because he *endured* much in his labors for the poor. It may be asked here, what does *-inia*, the affix of the word mean? Those who seek further on this point, may consult my *Morphology of the Mexican Verb.*

Sometimes no change at all occurs in a word through a very long period of time, even 3000 years or more. The affirmative, *yea*, yes, occurs in Mexican *ye* which is pronounced exactly as in English, also *yye. Uel*, good, in Mexican coincides in form and in sound with *well* in English. *Cem* one, in Mexican is precisely the same as *sem* found in the Latin *sem-el*, once.

These few bits of comparative Philology illustrate my work and the *way*, but I must add that the *easy* things are very few and the *hard* ones very many. During my 7 years, continuous work thousands of slips with tentative derivatives were cast aside. In some stubborn instances, these Aztec words seem to defy analysis or certain comparison. These words *Aztec* and *Az-tlan* themselves enfold an important secret. What is *az?* It might be *copper* or *gods* or neither of them. But there is no doubt that this root is highly significant in the history of this people whose home was Aztlan and from its description an Eden. It may be as-gard the Germanic home of the gods.

And what is the wonderful story of the Aztecs? They are perhaps the greatest historical puzzle ever set before the historian for solution. Many books have been written about them—some magnifying their importance, others depreciating it. They, with their kindred tribes, called in the aggregate, Nahua, were beyond doubt an important people, important in numbers, in power, in civilization. They had 27 rulers between 1087 A. D. and 1565. To say less than this is to do them less than justice. Their civilization began in Asia, not in America. The Ethnologists and Philologists have as a rule dogmatically asserted the contrary but the facts are against them and I may say further without fear of successful contradiction that many words in Algonquin are Greek in form and meaning. It is time for learned men to drop these old theories and investigate the new. This can best be done by a profound and general study of American languages.

But where did these wonderful people the Nahua, come from? They came from Western Asia, from East Iran, the present Afghanistan, Bokhara and Turkestan, from the Pamirs "The Roof of the World." Their own historians give some accounts of the *Migrations* which from first to last occupied several centuries. They began with the Chichimecs, apparently about the time of Christ, and the last, the Aztecs arrived at the site of the city of Mexico about 1325 A. D. It is evident from the successive migrations, which all ended in a comparatively small country, *Anahuac* "Water Country," around the Mexican Lakes, that these people knew the way and that

the way was open for centuries. It is said that the Toltecs who arrived at Tula, state of Mexico, 690 A. D. (Clavijero) were about one hundred years on the way. They stopped en route to raise crops and recuperate from time to time. On the other hand the Aztecs accomplished the journey in about *twenty-three years.* (See *Primitive Aryans of America.* Chap. XV.) All came from the *North* which indicates a North Pacific route "by boats over the sea wide as heaven."

All this suggests a more careful investigation into the possibilities of inter-communication between the Old World and the New at a period long antedating Columbus or the Northmen. The statements of the Indian Historians are too specific to be brushed aside as fabrications. Besides they allude frequently to ancient books (in picture writing) which they knew how to read. These picture writings were based in part at least on a syllabic system in which the first syllable of a word had a phonetic value. Tenochtli, the name of a chief, would be spelled te-tl, "stone" noch-tli, cactus, *i.e.*, the pictures of a rock and a cactus. This method is similar to old Greek syllabic writing.

That the Aztecs were once in touch with Zoroastrian fire worshippers is beyond doubt. They considered fire as sacred and kept fires burning day and night in their *teocalli* temples. They extinguished and relit all fires once in 50 years. This ceremony was most impressive and tragic for the new fire was relit on the naked breast of a living victim. Swift runners carried the new fire to all parts of the country and universal joy succeeded universal lamentation. Mexican mythology is very archaic and their gods may be traced in functions and in *names* to the Pantheon of the Old Aryans. For example, *Uitzilo-poch-tli,* the Mexican war god, is in its root *poch* the old Persian, Baga; Russian, Bog, God. This root bog, poch, bag, means simply the "Giver." The serpent worship of the Aztecs is a survival of the once universal serpent worship of mankind. Quetzalcoutl, their "Christus," "The Fair God," was in name simply the plumed serpent.

Chicago, Ill. THOMAS S. DENISON.

EXCAVATION OF A MILE-CASTLE IN CUMBERLAND.—Some time ago a mile-castle was discovered by Messrs. Gibson and Simpson on the Cumberland side of Poltross Burn. The whole interior has been laid bare, revealing features of special importance. It lies on a slope facing north, with the Roman wall at its foot. "It enclosed a series of terraced buildings intersected by a central street. These give us, for the first time, an example where the internal arrangements of a mile-castle have remained; and by excavation, conducted with scientific care, successive periods of occupation, destruction and reconstruction are made manifest." The work done from year to year in this section of England is greatly advancing our knowledge of the Roman wall.

BOOK REVIEWS

THE ICE AGE IN NORTH AMERICA[1]

THE special studies of Professor Wright on the glacial drift began in 1874, his earliest work, published two years later, being a description and explanation of the origin of remarkable gravel ridges, called kames or eskers, in northeastern Massachusetts. During the next 4 years, with the late Professor H. Carvill Lewis, he traced the boundary of the glaciated area and its terminal moraine across Pennsylvania, and their report and maps form Volume Z of the Second Geological Survey of that State. Later Professor Wright spent several summers in continuing this survey of the glacial boundary through southern Ohio, Indiana and Illinois. This work was initiated under the auspices of the Western Reserve Historical Society, of Cleveland, Ohio, and was extended westward to the Mississippi river for the United States Geological Survey. In subsequent years he examined the glacial formations in portions of the Northwest to Washington and in Alaska, including a very interesting investigation of the Muir Glacier.

These observations, and those of many other glacialists of the United States and Canada, were very fully presented and discussed in the first edition of this work, published in 1889, which was followed by 3 other editions, enlarged by supplementary notes.

Additions and changes contained in this Fifth Edition are mentioned by its preface as follows:

> In the present revision the new material added is especially abundant only upon a few subjects. Many existing glaciers have been discovered in the Rocky Mountain system in the United States and Canada—a region which was scarcely touched by explorers until the close of the last century. Explorations have also greatly extended our knowledge of Alaskan glaciers, while the changes in the Muir Glacier have been so enormous as to be really startling, fully sustaining the theoretical conclusions which I had drawn from my studies of the glacier in 1886. Much new material, also, has accumulated concerning the glaciers of Greenland, Central Asia, and the Antarctic Continent.
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> As to the extent of the continental glaciers of the Pleistocene period, there has been little additional information since the publication of the first edition. Among the most important additions has been the rectification of the glacial boundary across New Jersey and Pennsylvania, where the "fringe" or "attenuated border," imperfectly apprehended by Lewis and Wright, has been carefully traced by Professor E. H. Williams from the Atlantic Ocean to Ohio and found to be from 20 to 30 miles south of the terminal moraine.
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> The facts relating to this border, brought out by Professor Williams, have a most important bearing upon the discussion both of the cause and of the date of the Pleistocene glacial epoch.

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[1] *The Ice Age in North America and its Bearings upon the Antiquity of Man.* By G. Frederick Wright, D.D., LL.D., F.G.S.A. Fifth Edition, with many new maps and illustrations, enlarged and rewritten to incorporate the facts that bring it up to date, with chapters on Lake Agassiz and the probable cause of glaciation, by Warren Upham, Sc.D., F.G.S.A., 8vo, pp. xxi, 763. Three folded maps, 9 page plates, and 196 figures in the text. $5.00 net, carriage 25 cents. Oberlin, Ohio. Bibliotheca Sacra Co. 1911.

There has also been a great accumulation of evidence, collected pretty largely by Mr. Frank Leverett and the geologists of Iowa, Minnesota, Dakota, and Canada, concerning the episodes of the Pleistocene glacial epoch, leading to the division into the Kansan, Illinoisan, Iowan, and Wisconsin periods of advance and retreat. The relative length of time occupied by these episodes is still a most interesting subject of investigation.

The question of the date of the Pleistocene glacial epoch is still a subject of hot discussion, but a great accumulation of facts, relating to post-glacial erosion and sedimentation, is rapidly establishing a very moderate glacial chronology.

Likewise a great accumulation of facts is limiting the theories concerning the cause of glaciation to changes in land elevation and in the direction of oceanic currents. The chapters upon the date and the cause of the epoch have been greatly enlarged and rewritten.

The final chapters upon the discovery of human relics in deposits connected with the Glacial epoch in North America have also been thoroughly revised and enlarged, to take into consideration the more recent discoveries of facts bearing both for and against man's existence here in glacial times.

Glaciers now existing are the theme of the first 5 chapters, including the glaciers of the Rocky Mountains, the Sierra Nevada and Pacific Coast ranges, and of Alaska, Greenland, and other parts of the world.

The great glaciated area of this continent, comprising about 4,000,000 square miles, and its diverse glacial, fluvial and lacustrine deposits, are described in the next 11 chapters. The last two of these chapters relate the history of the deposition of the loess in the basins of the Mississippi and Missouri rivers, and the formation of ice-dammed lakes during the maximum extension of the continental ice-sheet in the valley of the Ohio river, and during its recession and departure in the basins of the Great Lakes tributary to the St. Lawrence and in the valley of the Red river of the North.

Lake Agassiz, the largest of these temporary glacial lakes, extended as its ice barrier receded along the Red river valley and over the sites of Lakes Winnipeg and Manitoba, attaining a length of 700 miles or more and an area exceeding 100,000 square miles.

Chapter XVII treats of the migrations of plants and animals occasioned by the extension of the ice-sheets, and of the subsequent return of the temperate flora and fauna, when the ice-sheets were melted away, to occupy again the vast areas from which they had been excluded.

Europe during the Glacial period is the subject of the next chapter, including summaries for Great Britain by Lewis, Kendall and Harmer, and for the moraines in Germany by Salisbury.

In the next two chapters, respectively on the cause and the date of the Glacial period, Professor Wright shows that the astronomic theory of Croll, which attained much favor among glacialists, cannot be a true explanation of the causes of the Ice Age. The astronomic conditions which were supposed to produce glaciation terminated about 80,000 years ago; but the Ice Age, as shown by Winchell, Gilbert, Wright and others, in computations from the rates of erosion of the gorges below the St. Anthony falls and Niagara falls, and from other concurrent lines of evidence, continued until about 10,000 to 6,000 years ago.

It is also well shown that the departure of the North American ice-sheet and the decline and end of the Glacial period were comprised within only a few thousand years. The aggregate shore erosion and beach deposits of the glacial Lake Agassiz, which was contemporaneous with the greater part of the recession of the ice-sheet, have probably no more than a tenth of the amount of similar erosion of shores and accumulations of beaches and dunes by the waves and currents of Lake Michigan during the post-glacial period.

The relation of the Ice Age with the antiquity of man is the subject of the last 4 chapters of this volume. In this part, Professor Wright discusses very convincingly the evidences that men were living on this continent, as they are fully proved to have inhabited Europe, before the ice-sheets disappeared. In glacial gravel and sand deposits of the Delaware and Ohio valleys, in the Missouri valley loess of Lansing, Kansas, in the modified drift of Little Falls on the upper Mississippi river in central Minnesota, and in Quaternary beds of California and Idaho, doubtless as old as the glacial drift, stone implements and other relics and the bones of man have been found, amply proving his presence during the closing stages of the Glacial period.

For the general reader Professor Wright has very interestingly set forth the records of this latest geologic period, with helpful discussions of the methods by which the ice-sheets produced the various drift formations, and of the causes and duration of the Ice Age. For the special student, who will desire to consult other authors, he has added a bibliography, filling 30 pages, of papers on American glacial geology published since the first edition of this work. The index fills 21 pages.

WARREN UPHAM.

THE REVOLUTIONS OF CIVILIZATION[2]

DOCTOR William Flinders Petrie has added to his numerous scientific contributions a short book on *The Revolutions of Civilization*. It is characteristic of Doctor Petrie—short and to the point. It is exceedingly suggestive and the theory advanced convincingly set forth in the 131 pages comprising the book.

With the rise and fall of the various civilizations of Egypt as a basis, for there we have a vista of 10,000 years, Doctor Petrie shows that civilization throughout the world is "a recurrent phenomenon" and in Egypt and Europe the fluctuations are approximately contemporaneous. The author considers sculpture as the most definite test of the rise and decline of civilization, especially when taken in connection with architecture and painting.

He divides the history of man into 8 periods or "Great Years." The first two periods belong to the prehistoric. In these the decorations of

[2] *The Revolutions of Civilization*. By W. M. Flinders Petrie, D.C.L., LL.D., F.B.A., F.R.S. Pp. xii, 136; 57 illustrations. 2s. 6d. London and New York: Harper and Brothers. 1911.

the pottery and the flint work as found in Egypt show two periods of advance and decline—the length of these periods, however, is indeterminable. The III period produced the distinctive art of Egypt which appeared in archaic sculpture "shortly before the I dynasty," rose to its best development and freedom of treatment in the I dynasty and declined to conventionalized forms in the II dynasty. This order prevailed throughout the 8 periods—all of which are traced by Doctor Petrie and compared with the fluctuations of civilization in Europe and other parts of the world.

In the fluctuations of civilization the order in which different activities develop is well shown in the VII period in which Doctor Petrie gives the following dates as the turning points:

B.C. 450 in Sculpture	B.C. 0 in Mechanics
B.C. 350 in Painting	A.D. 150 in Science
B.C. 200 in Literature	A.D. 200 in Wealth

Doctor Petrie shows that the "impression that civilization always comes from the East is due to the East being a few centuries ahead of the West in its phase and this difference in phase of the wave of civilization is the cause of the constant struggle between the East and the West."

What is the cause of these periods?—or as the author puts it "What determines the spring, summer and autumn of the Great Year?" Doctor Petrie thinks that the theory of Mr. Huntington that such changes in civilization are due to the periodical changes of climate will not answer this question. Such climatic changes have a modifying effect on the length of the periods, but "will not account for the regular phases already described," nor for "a race keeping to its own phase, when it has passed into a country of a different phase, as we have noticed."

There may be a normal rate of change from stage to stage, produced by the process of the human mind. Each generation may average a certain extent of change, as each year averages a certain amount of growth or decay in the body. Yet against this as an entire cause there is the alternation in the closeness of the phases; the different activities were grouped much more closely together in early times, they are by now separated by some generations each. This may imply that each subject is more elaborately developed as it comes forward, and absorbs all the best intellect for a longer time, and so postpones the rise of the next subject.

There is, however, another possible cause of the length of period. The rise of the new civilization is conditioned by an immigration of a different people. That is to say, it arises from a mixture of two different stocks. That effect of mixture cannot take place all at once. There are barriers of antipathy, barriers of creed, barriers of social standing, but every barrier to a race-fusion gives way in time, when two races are in contact. Even if every marriage in the first generation was a mixed one, that would only give two elements of the needful fusion to each child; and what seems to be needed is an ancestry of all the elements of two different races completely intermingled to produce a new era of activities. Now, if generations average 30 years, we may take it that each man has 10 ancestors a century ago, apart from related marriages. Hence each man has a million ancestors in 6 centuries, 10 millions in 7 centuries, 100 millions in 8 centuries. Thus (apart from related marriages) 7 or 8 centuries of mixture of two races ensures that, in any ordinary-sized country, the full maximum number of different ancestors are blended, and every strain of one race has crossed with every strain of the other. This is the period of greatest ability, beginning about 8 centuries after the mixture, and lasting for 4 or 5 centuries in different subjects. The extension of the time may well balance the delay in mixture due to related marriages. Thus we may

say that the complete crossing of two races produces the maximum of ability, and that, from that point, repeated generations diminish in ability. This may well be the basal cause of the length of period which we have noticed, as it well accords with it in the time required. But probably each of the other causes before noted may bear a part. For instance, a dry period and famine may precipitate a migration which cuts short a civilization, as in period VI.

In conclusion regarding the future he says that since "the source of every civilization has lain in race mixture, it may be that eugenics will, in some future civilization, carefully segregate fine races, and prohibit continual mixture, until they have a distinct type, which will start a new civilization when transplanted. The future progress of man may depend as much on isolation to establish a type, as on fusion of types when established."

FREDERICK B. WRIGHT.

DIE PALÄSTINA-LITERATUR[3]

WE are pleased to welcome this second volume of Doctor Thomsen's valuable work, covering Palestine literature which appeared during the years 1905–1909. The plan of the series as expressed in the sub-title is comprehensive—an international bibliography in systematic order with author and subject index. This plan is well carried out. Over 3750 separate books and articles in various languages are included. Even reviews of books on Palestine find a place in connection with the books reviewed. The contributions to Palestine literature are arranged under 6 general heads, viz.: general, including bibliography, biography, etc.; history, arranged under different periods; historical geography and topography; archæology geography and present-day Palestine. The index, covering 38 pages, enables one to turn immediately to the pages on which any given author or subject is mentioned.

Each notice includes what we should expect—author, title, when and where published, number of pages, illustrated or not, and sometimes the trend of the work in question is given in a few words; as for instance, to the notice of an article by R. A. S. Macalister on "*The Garden Tomb*" are added the words *Kann nicht Jesu Grab sein.*

Doctor Thomsen expects to issue a third volume in 1915, covering the years 1910–1914.

[3] *Die Palästina-literatur, eine internationale Bibliographie in systematischer Ordnung mit Autoren- und Sachregister.* Bearbeitet und herausgegeben von Peter Thomsen. Zweiter Band, die Literatur der Jahre 1905–1909. Pp. xx, 316. 80 Pf. Leipzig, J. C. Hinrichs'sche Buchhandlung, 1911.

EDITORIAL NOTES

ORIGIN OF THE GREAT GREEK GAMES.—Professor Ridgeway considers that the origin of the Great Games of Greece lay in the worship of dead heroes. Homer mentions funeral games for Patroclus and Œdipus and shows that the ordinary occasion of such contests was a funeral.

ROMAN COINS FOUND IN FRANCE.—In December, 1910, a find of more than 600 Roman coins was reported from near Perpignan, France. The earthenware pot in which the coins were was broken by the pick which disclosed its presence. The coins date from 100 B.C. to 25 B. C.

SOCIETY FOR THE PROMOTION OF ROMAN STUDIES.—A Society for the Promotion of Roman Studies has been formed in London. Together with the Hellenic Society it maintains a library of Greek and Roman archæology and history.

MAGAZINE OF ANTIQUE FIREARMS.—There has recently come to our notice volume 1, number 1 of the *Magazine of Antique Firearms*, a monthly periodical devoted to the history of firearms. It is edited by G. Elsworth Brown, and published by Jno. N. Clements, Athens, Tennessee.

RECENT FINDS AT MERÖE.—Reports from Khartum under date of December 21, 1910, state that M. J. Garstang has recommenced work at Meröe, on the Nile. He has found a palace, a bath-room, the walls of an acropolis, quays and a harbor. A large bronze head with inlaid eyes—an excellent example of Greek art—was also discovered.

BEARDED HEAD OF DIONYSUS FROM NEAR THE PEIRENE.—At the March meeting of the American School at Athens, Mr. Hill gave an account of the School's excavations near the Peirene. A number of marble heads were found in a cistern of the Byzantine period. Among them was a heroic-sized bearded head of Dionysus.

DOCTOR MACCURDY APPOINTED ASSISTANT PROFESSOR OF ARCHÆOLOGY. By vote of the Corporation of Yale University, Doctor George Grant MacCurdy has been appointed Assistant Professor of Archæology. Professor MacCurdy is secretary of the American Anthropological Association, and a consulting editor of this Journal.

OLD VESSEL FOUND IN CANAL ZONE.—"The hull of a vessel probably several centuries old has been dug out of the sand at Nombre de Dios, in the Canal Zone. It was under 20 ft. of sand and about 300 ft. from the beach. The wood resembles oak and was put together with wooden pins. Many old slugs and bullets presumably from the ship's magazine were found." (*Peru To-day*, February, 1911.)

PETRIFIED WOMAN FOUND AT POMPEII.—Dispatches from Rome say that the petrified body of a woman has been recently found at Pompeii. Many valuable jewels adorned the body, leading to the inference that she belonged to the patrician class. The most remarkable of the jewels are two clasps, each composed of 21 pearls in a cluster. Nothing comparable with them has been found before among the ruins of Pompeii.

COFFIN FROM BENI-HANAN.—The *Bulletin* of the Royal Museums at Brussels for August, 1910, announced the addition to their Egyptian collection of a coffin found by Professor Garstang at Beni-Hanan. The coffin is decorated inside and out with paintings, mostly well preserved. The inside of the cover bears a copy of a religious text, the 17th chapter of the Book of the Dead. The interior friezes reproduce the objects which formed part of the funeral furniture.

PALESTINE EXPLORATION FUND.—Prior to taking up his work at Beth Shemish for the Palestine Exploration Fund, Doctor Duncan Mackenzie made a trip to Petra. An architect, Mr. Newton, accompanied him and was able to make a thorough architectural drawing of both stories of the Treasury of Pharaoh, work which had not been done previously owing to the difficulty of scaling the monument. By the use of a ladder specially constructed, Mr. Newton was able to ascend and make an accurate survey of the whole.

ORIGIN OF CREMATION AMONG THE GREEKS.—J. de Mot believes that cremation among the Greeks originated in an attempt to prevent the spirit of the dead man from returning to trouble his relatives. He thinks that probably the Egyptians had the same thing in mind in making the burial chambers of the pyramids difficult of access; and the Babylonians in using jars of two pieces fastened together after the body had been placed inside. Water was also considered a barrier against return, but fire was the best of all.

THE SOUTHWEST MUSEUM.—The main activities of the Southwest Society, affiliated with the Archæological Institute of America, centers around its museum, the Southwest Museum in Los Angeles. During the last year a bequest of $50,000 to be used on the building was announced. Doctor J. A. Munk has donated his valuable library of Arizoniana and Doctor Charles F. Lummis has presented valuable books, manuscripts and rare collections together with a house in which his collections will be kept intact.

A FIND OF EGYPTIAN STELÆ.—Captain Weill and M. A. J. Reinach in their work at Coptos last season discovered 7 stelæ piled one upon another in what appears to have been a foundation deposit. One of these belongs to Pepi I; 3 to Pepi II; one to Nefer-kau-Hor, whose Horus or hawk name was Neter-bau; two to Uatch-Ka Ra, whose Horus name was Demd-ab-taui. These last two kings Reinach and Weill would assign to

the VIII dynasty closely following the Pepis of the VI dynasty, thus dropping out Manethro's VII dynasty.

EXCAVATIONS ON CRETE.—Mr. Hatzidakis, the Ephor of Cretan Antiquities, has made some interesting excavations at Tylisos, 6 miles west of Candia and Cnossus, uncovering the relics of a palace ruined by fire and pillage. Nevertheless, it contains monuments which he considers to be superior in wealth and artistic skill to those found on other sites in Crete. Among these were copper cauldrons, larger than others yet found at this date; a statue about 12 in. high; fragments of wall paintings of a style superior to those of Cnossus; and two tablets in the Cretan alphabetical script.

EXCAVATIONS OF A HUT-CIRCLE NEAR ACKERGILL TOWER, SCOTLAND.—Mr. J. E. Cree has given an account to the Society of Antiquaries of Scotland of the excavation of a hut-circle near Ackergill Tower, Caithness. The site was within the fringe of sandy dunes near the shore. When the structure was laid bare, it was seen to consist of the remains of an irregularly circular wall, varying from 2 to 4 ft. thick, enclosing an area of about 12 x 10 ft., having an entrance facing south. The interior was roughly paved with irregular flags. Inside to the left of the entrance was a small recess set off by a stone standing on edge. Outside was a small enclosure with no visible entrance. Another enclosure outside seems to have been used as a cooking place. Aside from a flint core and two implements of iron like punchers, no relics were found.

EXCAVATIONS ON THE ISLAND OF JERSEY.—On February 23, 1911, Mr. R. R. Masett read a paper before the Society of Antiquaries on recent archæological researches on the island of Jersey. In July 1910 the excavation of the cave of St. Brelade was undertaken. Bones and teeth of rhinoceros, reindeer, a small species of horse and of deer were found, leading to the conclusion that the fauna was pleistocene and that, when these animals lived, Jersey was connected with the continent. Nine human teeth from a lower jaw were found lying in their original position, but the bone had been completely absorbed by the surrounding soil. A number of flint implements found are interesting as no flint is now found *in situ* on the island. The cave of St. Ouen was explored in 1881, but there seems to be a field for investigation there still. A large number of implements, possibly Mousterian, have been found.

CLAY VESSELS FOUND ON CULBIN SANDS, SCOTLAND.—At the January meeting of the Society of Antiquaries of Scotland, Mr. J. Graham Callander reported the discovery of two clay vessels on Culbin sands, Morayshire. One contained wheat. The other was found in a kitchen midden. The vessel containing wheat was in fragments, but appears to have been about 12 in. in diameter. Fragments of wood charcoal, hammer stones or grain pounders and a calcined scraper of flint were also found, suggesting that the site might have been covered by a wattle hut.

Although wheat has often been found on Roman sites in Scotland, Bronze Age wheat was previously known only by 3 grains in the clay of an urn from Yorkshire, and by grains similarly embedded in a Bronze Age vessel found at North Berwick. The other vessel from a kitchen midden, near by, is cylindrical, resembling none of the regular types of Scottish Bronze Age pottery, though some other similar pieces have been found.

EXPLORATION OF CAVES AT GIBRALTAR.—In September, 1910, Doctor Duckworth conducted excavations at Gibraltar for the purpose of gaining information as to the conditions in which prehistoric remains occur on the Rock of Gibraltar. A general survey of the locality was made and two caves were explored. The first was a cave in Forbes Quarry, whence the human cranium known as the Gibraltar skull was taken in 1848. The floor was covered by successive layers of stalagmite formation. No traces of animal remains were found. The other cave was 800 ft. above sea-level. There were abundant evidences that it had been a resort of prehistoric man in the early neolithic stage of culture. This appears to have been a cave kitchen-midden. The evidence of human occupation includes part of a human skeleton of the Cro-Magnon type, stone implements, sherds and shell ornaments. Remains of the ordinary animals were found and, in addition, bones of wolf, seal, possibly chamois, certain birds and reptiles. No arctic rodent types were identified. Doctor Duckworth hopes to obtain permission to carry on further investigations.

EXCAVATIONS ON THE ISLAND OF CEPHALONIA.—M. Cavvadias has recently conducted excavations on the island of Cephalonia, one of the Ionian islands belonging to Greece. He believes that he found evidence of 3 successive layers of civilization, beginning with a Neolithic one which he places about 3000 B.C. and which is distinguished by rude monochrome pottery. The people at that time lived in wooden huts and buried their dead either in the hut itself or immediately outside, the tomb being a pit of roughly circular or elliptical shape. Then followed a period of "pre-Mycenæan" culture about 1000 years later, characterized by black undecorated pottery and burials in oblong tombs formed of 4 slabs of stone. Last came the Myceæan period which he places between the XV and X centuries B.C. At Mazaracata, M. Cavvadias found tombs showing evidence of a high state of civilization and containing gold and bronze ornaments, pins and daggers, enamels and engraved stones, but no iron. Here the dead were placed in their tombs sitting, or rather squatting on their heels, as the Egyptians still do, which confirms the remarks of Herodotus as to the burial customs of the Nasamones in Libya.

EXCAVATIONS AT CAERWENT IN 1910.—At the meeting of the Society of Antiquaries (London) on February 16 a report was made of the work done at Caerwent during 1910. The field and garden west of the adjoining church yard was excavated. A series of shops and work shops was found. The shops occupied the front rooms of the houses, and were small, only 8 or 9 ft. square. They usually opened in front, but occasion-

ally on the side. Behind the shops were larger rooms, fitted with furnaces. In one of the rooms so furnished, 2 small bars of lead 6½ in. long, 1 in. wide and ½ in. thick and a piece of ornamental lead were found, indicating that the working of that metal might have been carried on there.

One cellar unlike anything previously found at Caerwent was encountered. It measured 12 ft. 9 in. by 8 ft. 9 in. and was reached by 5 steps having a descent of 4 ft. 2 in. The floor was of lime cement. There was a small window in the south wall blocked up in later Roman times. In another house was a small sandstone altar *in situ* with a Latin inscription.

LIBRARY OF GERMAN LINGUIST TO GO TO SANTA FÉ.—It is announced by Dr. Edgar L. Hewett, director of American Archæology for the Archæological Institute of America, that the library of the late German linguist, Professor Franz Nikolaus Finck, is to be brought to this country. It has been purchased by the Hon. Frank Springer of New Mexico, for the use of the School of American Archæology, the research school of the Archæological Institute of America.

Never before was such a collection of works on language and the science of language brought to America. Professor Finck held the chair of General Linguistics at the University of Berlin, and was the foremost linguistic scholar of his time. His writings are widely known. Dr. Finck did a great amount of field work in the Caucasus mountains of southern Russia, where in an area no greater than that of Switzerland, over fifty distinct languages are spoken. There is scarcely a language in the world with which he was not familiar.

After his death, which occurred recently, Mr. Springer opened negotiations for the purchase of the magnificent private library which had been amassed by Dr. Finck during his lifetime. The books are written in some fifty different languages. The library is to be installed in the historic palace at Santa Fé, where the Museum of New Mexico and the School of American Archæology are now housed.

VASE CONTAINING ROMAN COINS AND RING.—About a year ago a vase containing 6 silver coins and a silver ring was found near S. Ferriby, England. There had been a slight change in the course of the Humber river, which brought the vessel to light. The vase is well made and solid. It is of typical Roman grey ware, similar to others found near by. It is globular in shape, 3½ in. high, 4½ in. wide, 3¾ in. at the mouth and 2¼ in. at the base. There is an overhanging lip. The only ornamentation consists of two lines ¼ in. apart about the middle of the vessel. The vase is wheel-turned and well baked. Taken by itself it would probably have been estimated as belonging to the II century A.D.

The coins are exceptionally well preserved. One, a coin of the Emperor Valens, is larger than the others, being nearly one inch in diameter. They all appear to be of the IV century, and are valuable as showing the variety of pieces in circulation at one time. The emperors Valens, Valentianus, Julianus II, Constantius II and Gratianus are represented. The ring averages ¾ in. across and the bezel consists of a solid rectangular piece of

silver $\frac{3}{16}$ in. by $\frac{1}{4}$ in. The flat surface of this has been crudely engraved with a design which seems to be a bird hovering over an object which is not very definite in character. Mr. Reginald A. Smith, of the British Museum, is of the opinion that the device represents the dove and the sprig of olive, and would therefore appear to be of Christian origin, of about the V century. This date agrees well with the coins.

EXCAVATIONS AT VAUX-ET-BORSET.—The principal excavations carried on by the Royal Museums of Brussels during the latter half of 1909 were in the province of Liege at Vaux-et-Borset. A new group of neolithic hut foundations was excavated and named Cité Charlier. These habitations, partly subterranean, were inhabited by men who used almost exclusively the flint of the region. These beds are characterized by the great abundance of fragments, flakes and nuclei, the abundance of either rough or polished flint axes, the lack of arrow points with peduncles and barbs or in the form of a leaf, the presence of red ochre and the quantity of pottery. The pottery is the most interesting of the finds. There was an abundance of it in each foundation, some coarse and reddish, some of a much finer nature. The shapes are elegant and there is a remarkable variety and richness of the incised ornamentation consisting of straight and curved lines, made with the finger, chisel or point before or after baking.

These are in some respects similar to the dwellings of Reggionais in Italy, but in others different. Montelius ascribes them to the late neolithic period. These hut foundations would be, according to that eminent scholar, contemporaneous with the end of the third Scandinavian age and the second village of Hissarlik (2500 to 2000 B.C.). According to De Puydt the date is doubtful.

Seven pits or hearths of various shapes have been studied at Vaux-et-Borset, varying from 7 ft. 10 in. long by 3 ft. 6 in. wide to 11 ft. 5 in. by 4 ft. They varied in thickness from 5.8 in. to 2 ft. and lay at depths varying from 1 ft. 4 in. to 2 ft. 11 in.

INDIAN TRADITIONS AS TO THE ORIGIN OF MOUNDS.—The Indians as a rule have no traditions as to the origin of mounds, but during the summer of 1910 Mr. Arlow B. Stout found an exception among the Winnebago Indians encamped on the lower Dells of the Wisconsin river. One of these, Fred Dick, replied to questions somewhat as follows:

"Yes, Indians used to build mounds. Our Winnebago people did. They built many round mounds for burial. Don't build mounds any more. Don't do many things we used to do. White man coming changed many things of old time."

He was unable to enlighten Mr. Stout as to the animal represented in an effigy mound near by, but offered to ask some of the older Indians. He later brought the following report:—

"This is an animal that lives on the water. It comes out at night and goes along the bank. No, I never saw the animal. Only the oldest people ever saw it. No, it has no name. Indians use to have name for it but white man has no name for it. Guess old people only thought they saw the animal. It must be what you would call a spirit animal. Don't know

of any Indians that now have that animal [as a totem]. I am a bear. That other fellow is a panther. Yes, Indians built these animal mounds too."

Mr. Stout considers this evidence in support of the view that the Winnebago built both conical and effigy mounds, the latter in connection with the totem system. He says: "This bit of evidence regarding the use of a 'spirit animal' as a totem is interesting in view of the large number of effigy and so-called linear mounds that do not represent any known animals."

FRAUDULENT ARCHÆOLOGICAL RELICS.—The International Society of Archæologists has a special fraud department for the purpose of exposing frauds and makers of fake relics. In the December 1910 issue of their *Bulletin* the Fraud Director, G. Elsworth Brown, makes a report, the facts of which should be more generally known. He says in part:

"A glance at the operations of the archæological faker is positively alarming. A certain man in North Carolina is turning out about $25.00 worth of so-called Indian relics every day, so ingeniously manufactured and 'aged' that at least 50 per cent of them baffle the best expert detectors. He sells his product to a dealer who ships part of them to Europe where at least 99 per cent are accepted as 'genuine pre-Columbian stone implements' by custodians and museum officials that are recognized as the highest authorities. This particular person devotes his entire time to this nefarious trade, and is, in my opinion, the most baffling faker in the east.

"There is a firm—an aggregation of men, not a single dealer—located in Virginia whose output of bogus specimens extends not only over the United States, but also in Europe. This establishment was once supplied by agents in 36 states, but their 'quality of goods' has been quietly exposed to the leading archæologists in this country until their business is now principally with amateurs and in foreign countries. A peculiarity of this establishment's stock of stone implements is that most of them are poor (yet genuine) specimens rehashed, retouched and resharpened. This, of course, is as objectionable as though they were newly made throughout, but the fake manufacturers find it more profitable to buy up poor specimens and make fine ones of them, than to make them from the beginning. One of their practices is making double-barbed arrow heads from common ones by chipping out notches in their edges. By this way a common 5-cent arrow is converted into a 50-cent 'fine double-barbed' one. . . . . .

"Bogus specimens are in themselves bad enough, but when they are accompanied by bogus accounts of their alleged discovery the evil is twice wrought. This counterfeit data most always accompanies the bogus relic, and very often the genuine pre-historic relic's commercial value is dishonestly raised by false accounts of its discovery."

NEW LAWS GOVERNING ARCHÆOLOGICAL MATTERS IN WISCONSIN.—Charles E. Brown of the Wisconsin Archeological Society has sent us copies of two laws passed at the recent sessions of the Legislature of Wisconsin. With regard to the first Mr. Brown says: "A considerable number of persons are now known to be engaged in the making and

sale of spurious archæological objects and the Wisconsin Archeological Society has caused the passage of the present law for the purpose of protecting local, public and other museums and private collectors of prehistoric Indian material against these. In the past many private collectors have been victimized by these unscrupulous fakers. It is hoped that other states will follow Wisconsin's lead by enacting similar laws and this detrimental traffic will thus be stopped."

The text of the law is as follows:—"There is added to the statutes a new section to read: Section 4454m. The reproduction or forgery of any archæological object which derives value from its antiquity, or the making of any such subject, whether copied or not, with intent to represent the same to be the original and genuine, with intent to deceive or offer any such object for sale or exchange, representing the same to be the original and genuine, or knowingly having possession of any such reproduced or forged objects with intent to offer the same as original and genuine, is hereby declared to be a misdemeanor, and any person convicted thereof shall be punished by a fine of not more than one hundred dollars, or by imprisonment in the county jail for not more than six months, or by both such fine and imprisonment."

The other law reads as follows: "There are added to the statutes three new sections to read: Section 4442m. It shall be unlawful except as hereinafter provided to destroy, deface, mutilate, injure, or remove any Indian burial, linear or effigy mounds, enclosures, cemeteries, graves, plots of corn hills, garden beds, boulder circles, manitou rocks, boulder mortars, grindstone rocks, or other prehistoric or pictograph rocks, caches, shell or refuse heaps, spirit stones or historic Indian remains located upon public lands, state parks, forestry reserves, lands of state educational or other state institutions, or upon other lands or properties belonging to the state; provided, however, that the board, commission, or other state officer or officers having control under the laws of the state of the lands or properties upon which they, or any of them, are situated may grant to state, county, municipal, or national educational institutions, or regularly organized archæological or historical societies, permission to explore or investigate for educational or scientific purposes.

"Section 4442n. The state park board is authorized to grant permission to remove or destroy any of the prehistoric or historic remains herein enumerated whenever said board shall deem such removal or destruction necessary.

"Section 4442o. Any person violating any of the provisions of section 4442m of the statutes shall be deemed guilty of a misdemeanor and upon conviction thereof shall be subject to a fine of not less than ten dollars nor more than one hundred dollars or imprisonment in the county jail for not more than ninety days or by both such fine and imprisonment."

Concerning this latter law, Mr. Brown remarks: "In asking the state to protect its Indian memorials in the interests of history and education, the Society hopes to also encourage private owners to protect the monuments on their own lands. The time is probably not far distant when the state will by the enactment of a proper law assume control of these also."

THE TEMPLE OF ARTEMIS (DIANA) AT EPHESUS. RESTORATION OF THE HELLENISTIC (IV CENT. B.C.) STRUCTURE, BY ARTHUR E. HENDERSON, ARCHITECT—SCULPTURE BY GILBERT BAYES

RECORDS OF THE PAST

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THE TEMPLE OF ARTEMIS (DIANA) AT EPHESUS. RESTORATION OF THE HELLENISTIC (IV CENTURY B. C.) STRUCTURE AS IT APPEARED IN THE TIME OF ST. PAUL

IN THIS restoration I have pieced together the many fragments found of this famous temple. Indeed, it was considered the most magnificent in the ancient world, it being the only temple mentioned as one of the Seven Wonders.

The drawing has been compiled from the study of Wood's measurements, those taken by myself during the British Expedition and the fragments sent home by Wood and the latter expedition conducted by Mr. D. G. Hogarth. I can claim that the disposition of the parts shown could be placed upon the remains *in situ* without the removal of a single stone as measured by me in 1904-05. To give an idea of the size of the building, I might state that the breadth at the lowest step of the platform measures 239 ft. $4\frac{1}{2}$ in. and that the width of the temple from center to center of columns was as follows: 20 ft. 1 in. × 20 ft. $1\frac{1}{2}$ in. × 23 ft. $9\frac{1}{2}$ in. × 28 ft. $1\frac{1}{2}$ in. × 23 ft. $9\frac{1}{2}$ in. × 20 ft. $1\frac{1}{2}$ in. × 20 ft. 1 in.

This temple follows upon the lines of the previous one[1] excepting that it was raised upon a magnificent platform and was built in the prevailing style and was much more magnificent.

[1] See RECORDS OF THE PAST, vol. viii, 1909, pp. 194-206.

It was found during the excavations that the columns and walls of this temple were exactly superimposed above those remaining of the Archaic temple. I consider that this was purposely done as great weight had already been placed upon the foundations at these spots and they had proved to be satisfactory. Certainly we did find settlements to the Archaic temple but none to the foundations raised upon them. The 10 steps to the platform were placed upon massive stone piers in line with the columns. Many of these piers remain.

The arrangement of the western flight of steps was suggested to me by the method of arrangement at the temple of Apollo Didyme near Miletus. The groups of statues shown upon the podium represent conflicts between a Greek and a Persian to the left, and a Greek and an Amazon to the right.

The temple was famous for the grace and beauty of its columns. The height of these is given as calculated by Ferguson, namely 60 Greek feet = 60 ft. $9\frac{1}{2}$ in. English. Thirty-six of these were adorned with glorious sculpture. Scopas is said to have been responsible for at least one. I have disposed of these 36 at the two end porticoes as in double ranks and between the antæ of the projecting end walls. The sculpture shown at the base of the columns follows the lines suggested by the late Doctor Murray as set up by him in the British Museum.

The architrave, bedmold, corona, and cymatium of the elaborate entablature are given as found, but no remains of dentals were discovered. As both the temple of Apollo near Miletus and the temple at Priene had this feature, I have introduced it in the form it takes at Miletus.

The angle of the pediment follows Murray but the sculpture in the tympanum is my own suggestion as representing the Asiatic Artemis, standing in a shrine mothering her devotees, some of whom are bringing, conducted by the Messenger, their offerings to her, while to the right and left are placed the sea and fertilizing streams.

On the apex of the pediment is placed another Asiatic form of Artemis, "The Goddess with the lions."

A bold scroll is placed as a frieze to the walls of the temple in the decoration of which bees are introduced to typify the priestesses in attendance who were called Bees, also a band of warriors is introduced as a dado decoration. Through the door is seen in front of the 127th column the well-known type of the Ephesian goddess as the cult statue.

For the purpose of showing the architecture all the innumerable offerings of statues and other objects which were deposited in and around this magnificent edifice have been omitted. I trust that the representation gives some idea of what a magnificient structure this temple must have been.

My thanks are due to Mr. Gilbert Bayes, the sculptor, for his beautiful rendering of the figure sculpture.

London, England. ARTHUR E. HENDERSON.

HEAD CARVED FROM PINK SOAPSTONE—NOT CATLINITE. NOTE RECTANGULAR EAR GUARDS AND UN-INDIAN FEATURES

DISCOVERIES INDICATING AN UNEXPLOITED CULTURE IN EASTERN NEBRASKA

WHAT seems to be a new culture is developing along the west bank of the Missouri River in Nebraska. Whatever its western boundary its eastern edge is the broad and "muddy" river, its southern limit may, for the present, be said to be the north shore of the Platte and its northern line has not as yet been determined. Scattered along the high bluffs which bound the western bottom lands of the Missouri are numerous saucer-shaped and sometimes slightly ovoid depressions in the earth which today are from a few inches to 9 ft. deep and from 25 to 125 ft. in diameter—the ruins of aboriginal dwellings. Some ethnologists regard them as of Mandan origin, others as Pawnee, and still others as Arikara, but although the culture seems to approach all of those it is only in that relationship which exists between primitive people and any attempt—as Mr. James Mooney expressed to the writer—to connect it with any living or historic tribe would be futile. According to the ethnologist quoted the culture seems to be that of an entirely extinct people like the so-called Mound Builders or Cliff Dwellers. Possibly it represents the ancestors of the races found in the vicinity by the first white explorers, but there is distinctive geological evidence that the culture is that of a people who lived hundreds of years ago. These ruins are the remains of permanent homes. Some seem to have been of

POTTERY HEADS
REDUCED ABOUT ONE HALF

construction similar to the Mandan earth houses described by early writers. In some earth was used as a covering while others were covered with bark or grass and osiers. In some ruins the explorer finds the roof to have been nominally 2 to 3 ft. in thickness; in others no evidence of a roof is visible, the floor of the dwelling being strewn with charred sticks, reeds or coarse grass. Many of the houses had been provided with a southern entrance and inclines 50 ft. long lead down to the deeper ruins.

The writer has performed a vast labor in these old ruins in three counties in eastern Nebraska, and the results other than a determination of the method of their construction have been remarkable. Objects have

LARGE OLLA FROM A CACHE. NEAR THIS POT LAY A TERRA COTTA PHALUS
ONE-QUARTER ACTUAL SIZE

LARGE OLLA SHOWING DECORATED RIM
ABOUT ONE FIFTH ACTUAL SIZE

been discovered showing a decided southern—Mexican or Central American—influence, their range being probably greater than that of any other culture north of Mexico.

These ruins are in no sense in village groups, but are scattered at random, the principal object appearing to have been to secure the most prominent and lofty natural sites far above the river. Sometimes a dozen ruins will be found generally in a north-south line from 100 to 200 ft. apart. At other times there will be one central ruin of large size surrounded by four, a line connecting these will be found to form a square with the smaller ruins at equal distances apart, but often three smaller ruins will partly surround a larger one. Sometimes there are isolated ruins, no others being nearer than a mile or more. In eastern Douglas County there are possibly 200 ruins, in Sarpy County as many more, while in Washington County the number is estimated at 500.

SHELL GORGET
ACTUAL SIZE

Ruins of a similar nature do not appear on the eastern or Iowa side of the river. There are many evidences, however, in western Iowa of a very ancient culture, easily distinguishable from that of the people of historic times.

Numerous tumuli are closely associated with these eastern Nebraska house ruins, but in only one instance has it been possible to secure skeletal material which can be related to the people who occupied these ancient sites.

In the ruins explored by the writer the floors are usually free of débris with the exception of evidence of a destroying fire. Experience has shown that the people were exceptionally orderly in their domestic habits and artifacts are seldom found scattered about. The major part of the objects in these ruins come from numerous caches placed in a circle from 8 to 10 ft. from the center of the ruin where the fireplace was located. These caches extend down below the floor from 3 to 6 ft. and are built in the shape

COMB—MATERIAL ELK ANTLER
ACTUAL SIZE

SHARD SHOWING DRAWING OF A WILD TURKEY

of an inverted funnel and usually are about the size of a hogshead. Objects were placed in the cache and covered with wood ashes from the fireplace, then earth was packed in and on this a small fire was kindled. Whenever a cache was so prepared the objects therein are in an excellent state of preservation and after long rains and heavy snows I have found them absolutely dry, not a sign that moisture had ever penetrated the walls being visible. As many as 16 caches have been found in one ruin, not all of them being used for storage of valued objects, however, many being filled with refuse consisting of broken shells, sherds, stones, burnt wood and ashes.

Among the objects taken from the caches may be mentioned the various scapula implements designated hoes or digging tools, and paddles, knives, scrapers and many unclassified articles made from the same bone.

Pots and bowls of more than a dozen kinds including a reddish ware of unusual hardness show marks of a basket weave, others being cross-hatched with markings which could have been made with a grass-wound paddle. Other designs are incised lines, angular and wave, while one sherd is decorated with a good drawing of a turkey. Lugs or handles are adorned with mysterious modeled heads and faces, representations of a rising sun and turkey tracks. Much of the pottery shows the common finger-tip indentation on its edge, but some has been adorned with unique designs made with a pointed instrument. That the people were prolific potters is evidenced by the vast amount of sherds found in caches and refuse heaps which accompany the ruins. Some of the 14 pots in the writer's possession are reddish while others are brown, orange and black, the latter being unusually well made and slightly glazed. In size they range from vessels not larger than a thimble to ollas that would hold more than four gallons.

CARVED HUMAN HEAD OF PINK SOAPSTONE DRAWN TO SHOW THE DETAIL

No grooved axes are found in these ruins. (Handsomely made grooved axes, sometimes with two grooves, are occasionally brought to light by the plow, but they seem to belong to another culture.) Celt axes are the only kind found in the ruins, ranging in size from 2 in. long by 1½ in. wide, to 9 in. long by 3 in. wide. Numerous small celts of chipped flint, rather roughly made, lie side by side with well made polished celts of diorite and greenstone. The smaller celts may have been fastened in a split handle like the flint swords of the Aztecs, frequently mentioned by Bernal Dias, evidence in the writer's possession supporting this assumption.

Pottery pipes of hitherto unknown designs are numerous, and neither McGuire's exhaustive work on pipes nor that of the Wisconsin Archeological Society contain similar patterns. The writer has them in the form of birds, beasts and reptiles. One is adorned with conventionally drawn serpents. Fine pipes of a rich dark purple soapstone were also made, some are plain while others are engraved with circles and wave lines.

Shell spoons, a short handle cut in one end the opposite end showing an edge beveled at right angles to the grain of the shell are numerous; commoner spoons are without a handle. Shell pendants in form of fish, skillfully made and porportioned and shell bangles perforated for suspen-

POTTERY PIPE REPRESENTING A FROG
ONE-THIRD ACTUAL SIZE

THREE STAGES OF NEEDLE MAKING—LEG BONE OF DEER. THE SAME BONE SHOWING METHOD OF CUTTING OUT NEEDLES. FINISHED NEEDLE

RIGHT MANDIBLE OF MULE DEER SHOWING DEEP GROOVES THROUGH TEETH AND INTO THE BONE. USE UNKNOWN

sion are found. A shell gorget of unusual design is one of the recent discoveries. Various other objects of shell are of unknown use.

Four singular beads of clay were found closely associated with the charred strands of a plaited hair rope. These beads are a little smaller than a black walnut. One is ovoid while the others are round. The holes through the beads were not drilled but formed when the clay was soft. These beads appear to have a glazed surface or a very high polish. The writer has yet to learn of similar beads being found elsewhere.

Arrows and four-edged stone knives are made of native flints and Wyoming jaspers. The former are of several patterns and are far better made than arrows turned out by the plow.

Shallow metates are made of drift rocks and sandstone. Discoidal stones and stone club heads, the latter ground so two crossing ridges are formed, and rounded and flattened crushing stones or pestles are among the stone objects. Arrowshaft smoothers of fine workmanship are made from a dark orange Dakota sandstone and a kind of pummice. A bead an inch long and a half inch thick, rounded, polished and drilled from each end is made of milky quartz. Pitted stones, possibly used for cracking nuts and pounding corn are common. A diamond-shaped flint knife socketed in the hollowed end of an antler handle and a hafted scraper are novelties, the scraper haft is also made of antler. Triangular and rectangular pendants of white soapstone are occasionally found.

By far the most interesting objects are those made of bone and antler. A straight bone, 5 inches in length and of the thickness of a lead pencil (the

SHUTTLES FORMED FROM ANTLER TIPS

bone not identified as yet) its sides showing scores of slight notches, its ends beveled not at all unlike a modern steel drill, is probably the only true flint flaker found in these ruins. The antler objects accredited "flint flakers" show no wear such as would result from work of that nature. The writer has a dozen of the latter and has finally decided they were probably used as phalli, terra cotta phalli having been found in one ruin, indicating their use by these people. Various forms of fine bone needles or punches are numerous and a well made series of flat and thin bone bodkins or needles with an eye are a part of the objects found. Shuttles not at all unlike the shuttle of the old-fashioned Singer sewing machine are among the rarer finds. They are formed from the tips of antlers. Fish hooks have notches on the outer curve of the elbow and a fish hook partly made, the latter discrediting the theory that bone fish hooks developed from the bone buckle, so featured in a recent work on the stone age have been found. Three stages of needle making—the leg bone of a deer, the same bone deeply incised its entire length 3 or 4 times and complete needles made from similar bones—have been twice found. So-called arrowshaft straighteners with one, two and three beveled holes are persistent features in the caches. One of these has a conventional snake engraved upon it. Bone celts of great fineness, some with a cutting edge, and bone "handles" have an extremely high polish. The most singular objects of bone found in the ruins are the right mandible of mule deer. On its inner side are two deep grooves an inch and a half apart, worn down through the teeth and deep into the bone as by a cord, the groove being very highly polished. There is no groove

BONE FISHHOOKS. NOTCHES ON THE OUTER CURVE OF ELBOW. PARTLY MADE BONE FISHHOOK IN CENTER

ACTUAL SIZE

in the outer side of the mandible, which is also polished very highly. No one seems to be able to determine the uses of this implement, 8 of which have been found. A hoe formed from part of the skull of a bison is probably the only one of this kind ever found. Skulls of wild dogs and wolves and sometimes pieces of human skulls are found in the caches. Anklets and bracelets, from 1 to 2 in. wide, are formed from the base of antlers of large deer or elk. The antler is cut so that the bracelet takes its form from the rounded portion of the antler, that is, the rounded antler gives form to the bracelet and therefore does not need to be fashioned or bent as would be the case were strips cut lengthwise from the antler. Tortoise shells are also frequent.

These are some of the objects found in the ruins of eastern Nebraska. What people they belonged to may never be known, but that they were sedentary and had no enemies is evidenced by the isolation of some of their homes. That they relied for sustenance partly upon agriculture is shown by charred corn and cobs found in their ruins.

One result of an archæological reconnoissance on the Omaha reservation, Thurston County, Nebraska, the last week in September this year, showed how the Omahas regarded ruins similar to those in the three counties in which my labors have been pursued. I found the familiar ancient type of ruin at several points on the reserve and learned from Dr. Susan Picotte and her sister, Mrs. W. T. Diddock of Walthill, Nebraska, both of whom are sisters of Mr. Francis LaFlesche of the Bureau of Ethnology, as well as other Omahas living near the village of Macey, the agency point, that the Omahas never knew exactly what the ruins were, regarding them as the work of a people of whom they knew nothing. When the party to which I was attached, composed of Mr. W. T. Diddock, a prominent real estate dealer of Walthill, and Prof. M. R. Gilmore, curator and archæologist of the Nebraska Historical Society, excavated a portion of one ruin situated 50 yards from the fine farm home of Noah LaFlesche, a relative by marriage of Mr. Francis LaFlesche—we found a "cache" filled with wood ashes, flints and sherds. The Omahas who were drawn by curiosity to the spot, were much astonished and declared that they had never heard their tribe were pottery makers and they appeared at a loss to account for the ancient ruins.

The writer also noticed on the reservation associated with the ruins equally ancient tumuli, but limited time prevented exploration. The writer believes the exploration by his party to be the first comprehensive archæological labor performed in the old ruins on the Omaha reserve.

Surface work in a cornfield owned by Mr. Noah LaFlesche was productive of chert implements, potsherds and one sandstone "bone-pointer," similar in material and design to those from ruins nearer the Platte River.

The writer has placed his collections from these ruins in the Omaha Public Library museum where they can be conveniently studied by scientist and layman. ROBERT F. GILDER.

Omaha, Nebraska.

POTTERY PIPE IN FORM OF BIRD WHOSE BILL IS ARMED WITH TEETH

THE KENSINGTON RUNE STONE ABROAD

ON MAY 8, 1911, the Museum Committee of the Minnesota Historical Society rendered another unanimous report on the Kensington Rune Stone.[1] It reiterated its earlier conclusion favoring the genuineness of the inscription,[2] and recommended that Professor N. H. Winchell and Mr. H. R. Holand be sent abroad with the stone at the expense of the Society for further study. This recommendation was not adopted by the Society for various reasons, chief of which was its confidence in its committee's thorough investigation, making, in the Society's opinion, a journey abroad an unnecessary expense.

I could not subscribe to the Society's conclusion that the proposed trip was an unnecessary expense. There were especially three reasons which prompted the journey. They were as follows:

To institute a search for the supposed rune stone found by La Verendrye in the Dakota region in 1738 and by him sent to Paris.

To learn on what grounds the Scandinavian scholars had condemned the Kensington Rune Stone. These reasons we had vainly sought to obtain by mail.

To learn in what relation the Kensington Rune Stone stands to the Dalecarlian (Sweden) inscriptions of the XVII century. Professor G. T. Flom claims that the Minnesota inscription "is the work of one who was familiar with the Dalecarlian runes and dialects" and is therefore a recent forgery.[3] The Minnesota Historical Society's committee was so much impressed by Professor Flom's supposed identification that it added to its report the following: "The genuineness of the Kensington Rune Stone must be determined, if Professor Flom's identifications be accepted, by an investigation directed to the question whether the Dalecarlian system of runes existed at the date 1362."[4]

As I just at this time received an invitation to be the guest of the city of Rouen, France, during its great millennial celebration and to present the subject of the American rune stone to the historical congress assembled there, I therefore left for Europe with the stone on May 30. I shall divide the results of my foreign researches into three chapters according to their purposes.

THE LA VERENDRYE STONE

In 1738 the Chevalier de la Verendrye made a trip from Montreal to the seat of the Mandan Indians (near the present Bismark, N. D.). Near their territory he found a small stone curiously engraved on both sides with

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[1] For introductory information on this subject see RECORDS OF THE PAST, Vol. IX, pp. 3–7, 240–245 and Vol. X, pp. 33–40.

[2] See *The Kensington Rune Stone, Report to the Minnesota Historical Society*, December, 1910, St. Paul, Minn.

[3] See *The Kensington Rune Stone*, An Address by George T. Flom, Springfield, Ill., 1910, p. 26.

[4] *The Kensington Rune Stone, Report to the Minnesota Historical Society*, f. 57.

strange characters. He satisfied himself that the inscription was not of Indian origin and then took it with him to the Jesuit scholars at Quebec. These were agreed that the inscription contained letters (Indians use only pictographs) and that these letters were Tartarian in origin. It was then sent to the Minister of the Marine, G. de Mauripas.[5]

Tartarian and runic characters have a remarkable similarity and would look alike to one who was not a specialist in either. As the Tartarian origin is out of the question and as the inscription was of neither Indian nor any known European origin, the conclusion is more than probable that this was a *runic* inscription. This belief gains emphasis when we remember that this stone was found near the home of the Mandan Indians who showed unmistakable signs of being the offspring of a mixture with a blonde white race.[6]

About a year ago the Minnesota Historical Society appealed, through Governor Eberhardt, to the French authorities to find this stone. But these authorities merely shrugged their expressive shoulders and murmured something about "American humbug." But there is no humbug possible in this case and we cannot afford to lose our earliest historical records because of this supercilious indifference. On my way to Europe I therefore stopped in Washington and with the energetic support of Senator Knute Nelson succeeded in getting our Secretary of State, Mr. John Knox, and the French Ambassador, M. Jusserand, to make official requests to the French to make search for the stone.

In Paris I personally searched the museums of the city for the stone but in vain. As none of these museums existed at the time the stone was sent to France it is probable that the stone is still reposing in some private collection, if yet in existence. The most feasible route to find any trace of it seems to be to search the archives and private papers of M. de Mauripas, Minister of the Marine to whom the stone was sent. This work has been kindly undertaken by Mr. Waldo Gifford Leland who now for 4 years with 4 assistants has searched the French archives for material on our colonial history under the auspices of the Carnegie Institution.

Finally, I brought the subject to the attention of many eminent French archæologists and historians at my address on the subject in Rouen, and it is now probable that we will soon hear something more about this strange runic stone of La Verendrye.

FOREIGN OPINIONS ON THE KENSINGTON STONE

I found that the runologists and Scandinavian philologists of Europe had only a very slight knowledge of the Kensington Rune Stone. They had, to be sure, all received copies of the elaborate and scholarly report of the Minnesota Historical Society, but I found only one man, Professor

[5] For a detailed account of this stone see Kalm's *Travels into North America*, London, 1771, Vol. 3, pp. 125–128.

[6] For a full discussion of this interesting tribe see *The Mandans, A study of their culture, archæology and language*, by Will and Spinden, Cambridge, Mass., 1906, particularly pp. 99–104.

H. Koht of Christiania, who had taken the trouble to read it.[7] They had all obtained some earlier fragmentary notions of the subject from Professor G. T. Flom's pamphlet in which he endeavors to disprove the inscription. This pamphlet had been scattered broadcast among the scholars of the Scandinavian countries and its impressions had been supplemented by Professor Flom's personal canvass among them last summer for the purpose of proving the inscription a forgery. There was, therefore, a general feeling of distrust toward the American rune stone.

When analyzed these reasons were, however, found to be most trivial. They consisted chiefly in unfounded suspicions against Ohman and Fogelblad, two men who were implicated in the finding of the stone, and in superficial assumptions that the inscription contained a number of English words. Those who have followed this investigation know that Ohman and Fogelblad were exonerated by the Minnesota Historical Society more than a year ago, and the misapprehension concerning the supposed English words was dispelled by an article published in RECORDS OF THE PAST a year ago.[8]

To guard against a wrong impression being given of these men's scholarship, I must hasten to say that not all found English words in the inscription. It was a common delusion entertained by many men of ability but little experience in this particular line of study. The better informed specialists laughed at the idea and were kind enough to point our correlative uses of these words in obscure texts which illustrated the eminent propriety of these words in the American inscription. For instance, Professor Södervall, the eminent Swedish lexicographer, pointed out where *from*, which in the earlier stages of this investigation was one of the most disputed words, occurs (with the spelling *fram*) a number of times in Lydikinus, an obscure legal annotator who lived in Westgothland, Sweden, about 1300.[9] *Fram* and *from* are of course the same words, the one merely representing a little earlier sound value than the other. Professor Axel Kock has shown that this sound change from *a* to *o* occurred in the first half of the XIV century.[10] Similarly, Professor Finnur Jonssön, the greatest authority on Old Norse in the Scandinavian countries, pointed out a number of passages where *mans* (another disputed word) occurs as a collective genitive as upon the stone and as was amply illustrated in RECORDS OF THE PAST, Vol. X, p. 244. He also pointed out an interesting passage in *Ynglingatal* where the particle *of* occurs in connection with an adverb of direction as upon the stone.[11] On the stone we have *of west* which was considered an impossible

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[7] Professor Koht is professor in history and is one of the leading investigators in Norway. He recently made an extensive trip through America and thus overcame the supercilious disdain which is a common European attitude toward American scholarship. After my address in Christiania he told me in private conversation that if the Kensington stone was *in situ* in 1890 it was in all probability genuine. The significance of this date (1890) lies in the fact that in that year (or 1889) appeared Professor Storm's *Studier over Vinlandsreiserne*, where the fact is brought out for the first time that in the very year of the inscription there was a Norse expedition in American waters.

[8] See the article *Are there English words on the Kensington Runestone?* RECORDS OF THE PAST, Vol. IX, pp. 240–245.

[9] See *Vestgötalagen*, Schlyter's edition, Stockholm, 1827, p. 397, art. *fram*. See also *Birgittes Uppenbarelse*, Klemmings edition, Stockholm, 1857, Vol. I, p. 101, line 5. Cf. p. 404 also p. 363, l. 13, cf. p. 407. See also Noreen's *Altschwedische Gram.*, p. 189, par. 248.

[10] See Kock's *Svensk Ljudhistorie*, Vol. I, pp. 352, 353.

[11] See Heimskringla, Jonssön's edition, Vol. I, p. 51, line 9. See also p. 34, line 11.

anglicism: in *Ynglingatal* we have *of austr* (east)—in both cases the meaning being "extensively west (east)ward."[12]

At my address on the rune stone before the historical congress in Rouen, Professor Oscar Montelius, the royal antiquarian of Sweden, discussed the inscription and advanced three arguments which he thought militated against the authenticity of the inscriptions. They were as follows:

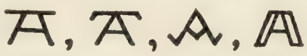
1. The particular form of the Roman *a*— A —which occurs in one place in the inscription was not known in any of the Scandinavian countries in the middle ages.

2. The particular runic form of the same letter— X —does not occur in any other runic inscription and seems to be an invention of the scribe.

3. The system of numerals used in the inscription is not found on any other rune stone, or anywhere else, and is an ingenious invention of the scribe.

In answer to these objections I will submit the following:

1. The Roman alphabet was in general use in the Scandinavian countries during the middle ages and it is therefore reasonable to suppose that the plain unadorned Roman *A* was also known. In Hildebrand's reproduction of XIV century seals[13] we therefore also find the Roman *A* several hundred times. As is befitting a seal the letters are, however, more or less ornamented and the *A* appears most often like this:



Yet these are not a difference of type but of embellishment. If one, however, insists on finding the letter without ornamentation it can be seen in a number of documents, seals and inscriptions from the XII and XIII centuries.[14] Our runemaster writing upon stone and under tragic denouements did not find the circumstances favorable to fanciful embellishments.

2. The runic X (a). It is impossible to say, aside from this inscription, what was the correct form for "a" in 1362 as no other inscription is preserved from that part of Sweden from that century. There seems, however, no reason for supposing that this character is an invention of the scribe: if he were a modern forger and was in doubt concerning the form he could always with perfect safety fall back on the older well-known forms shown on other stones and in books. A new form, on the contrary, would not only be unnecessary, but dangerous, as he could not know how soon another inscription from that time would be found in which event his self-made form would convict him of forgery.

3. The numerals. It is true that these numerals do not occur on any other rune stone, but we cannot give the credit of inventing this ingen-

[12] I desire to point out that the statements attributed to the gentlemen mentioned above are not to be understood as being any defense by these men of the genuineness of the inscription as a whole. They wished to take no position either for or against the inscription, not yet having studied it, and their opinions cited have only bearing upon the words discussed.

[13] Hildebrand, *Svenska Sigiller*, Stockholm, 1862.

[14] See *Paleografisk Atlas, Dansk Afdeling*, Copenhagen, 1903, Pl. II; Peringskjolds *Monumenta Uplendica*, Stockholm, 1710, pp. 166, 171; *Svenska Skriftprof*, Stockholm, 1894, Pl. I; and Pl. VI; and Överlands *Norges Historie*, Vol. III, pp. 525, 530, Pl. B (opposite p. 646), 756, 785, 890, 522.

ious system to the Kensington scribe. During the middle ages there was in use a system of perennial calendars known as *primstave*. They consisted of a flat stick of wood about 3 ft. long and about 2 in. wide. On this was carved a multitude of signs to represent the many holy days of the church and separated by a number of dots to represent the intervening days. Besides this the most ancient of the *primstave* also contained 19 numerals, one for each of the moon-cycle's 19 years, and by help of which one could figure out the different days upon which the new moon of that year would appear. An ancient writer by the name of Ole Worm, living about 300 years ago, interested himself in collecting these old *primstave* of which then only a few were found. In a Latin work published in 1643[15] he has pictured the different numerals which he found on these *primstave* and there we also find the same system as is used on the Kensington stone. Professor Sophus Bugge has shown that these numerals were in use in the XIV century or synchronical with the date on the stone.

Ole Worm's book is the only literary or archæological source where any student of today could have borrowed this system of numerals. The important question, therefore, remains: Did our scribe borrow them from Ole Worm? If he did, the inscription is a modern forgery. If he did not, it must be genuine. A comparison will suffice to show that the runic scribe followed another model than Ole Worm. The following is a copy of the numerals on page 69 of his book:

As will be seen, the third and fourth columns are one in system with the numerals on the rune stone. But while the upper transverse line in columns 3 and 4 begins below the top of the vertical line or staff it begins at the extreme top in the rune stone's numerals. A still more significant departure we find when we reach the numeral for 10 and beyond. In columns 3 and 4, 10 is represented by a simple cross † a figure much easier to cut in stone than the circle which caps the staff to designate the number upon the rune stone. Finally, the character for 14 is different.

It is plain that our runemaster has followed another model than those of Ole Worm. The presence of these numerals is, therefore, not an argument against the stone, but an incontrovertible proof of the genuineness of the inscription.[17]

During my extended visits to the different seats of learning in the Scandinavian countries I met only one philologist who would go on record as being convinced that the inscription was a forgery. This was Marius Hægstad, a teacher of the *Landsmaal* or combined folk-dialect of Norway in the University of Christiania. He is an old, outspoken opponent of the inscription, but although he has had the opportunity of studying the subject for several years, his objections are so elementary and so deficient in knowledge of the Swedish literature of the XIV century that it belittles the discussion to consider them seriously. However, he has stated his objections so emphatically that he has attracted considerable notice and

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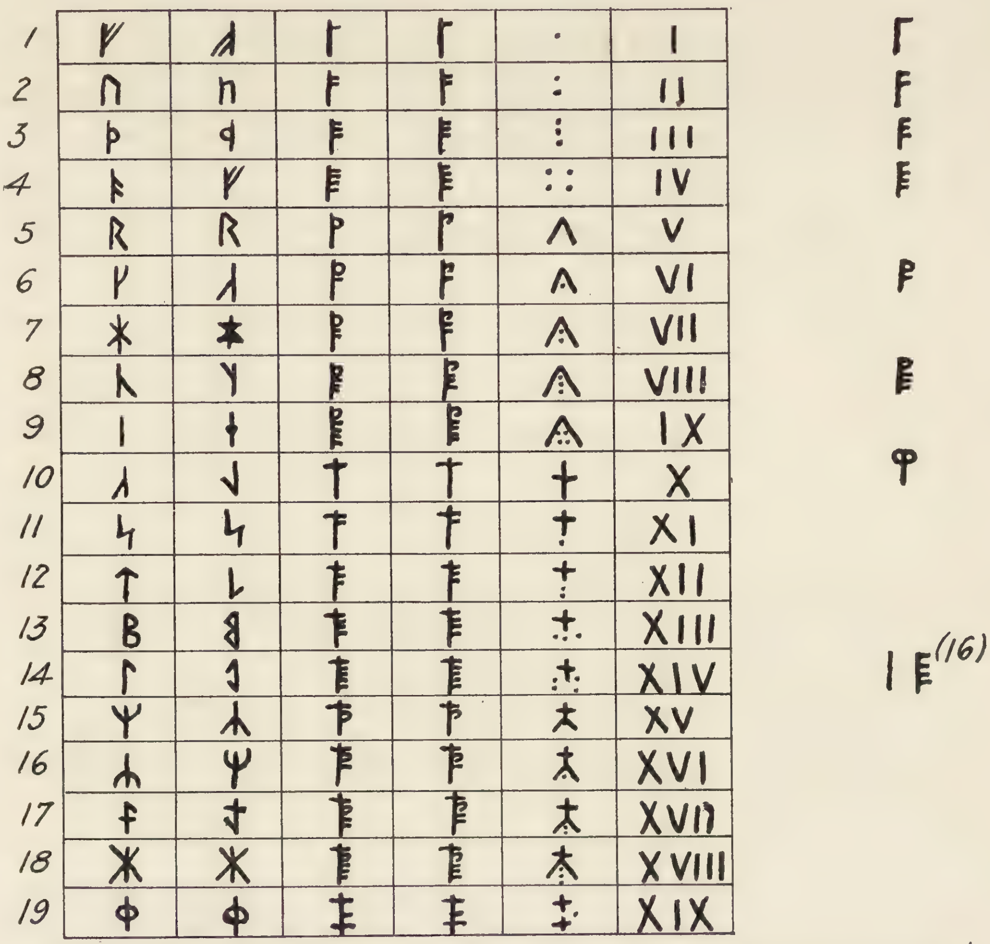
[15] Ole Worm, *Fasti Danici*, 1643, p. 69 (latter part of volume).

[17] It should be added that Professor Montelius subsequently gracefully withdrew the bulk of his objections and admitted that evidence had not yet been presented that proved the inscription a forgery. He publicly acknowledged that it merited the most thorough investigation and personally proposed to study it.



I will therefore reply to them in detail. The following assertions were made by him:

1. "Swedish endings are uniformly *a* and *ar* but in the inscription we find the very first word ending in *er—göter.*

2. "The preposition *paa* or *po* does not occur until 1470. Up to that time the form was *a* or *aa.* The inscription cannot, therefore, be older than 1470.

3. "*Opdagelse* does not occur until 1700. The inscription cannot, therefore be older.

4. "Singular verbs with plural subjects have not even up to the present day been introduced in Swedish. In Norwegian this usage first came into existence by the royal mandate of 1865. The inscription cannot therefore, be older than 1865.

5. "The inscription reads *fro thenno öh.* In 1362 the feminine gender would demand the reading *fro thessari öy.*

6. "The syntax is impossible in that *äptir* is used as a conjunction in the clause *äptir wi kom hem.*

[16] It is my opinion that this numeral is to be read 41; see *Journal of American History,* Vol. IV, p. 172, note 8.

7. "The sentence *wi war ok fiske*, which must mean 'wi war *at* fiske,' shows that the inscription was written after the conjunction *ok* and the mark of the infinitive *at* became confused by the common pronunciation *aa*. But this did not take place until quite recently." The above affirmations were made by Professor Hægstad without any supporting citation or other proof. We will now see if they are so self-evident that they will "stand without hitching."

1. In the dialect of Westgothland, which is the speech in which the inscription is written, there is no uniformity of endings in *a* or *ar*. Collin and Schlyter in their learned introduction to the Westgothland Law (written about 1300) call especial attention to the fact that endings in *er* are very common. To illustrate, they mention the occurrence of such words as *saker*, *kaller*, *taker*, *häreth*, *vegh*, *mather*, *stande*, *uten*, etc., in all of which words we would regularly expect *a* in the last syllable.[18]

In *Gamle Eriks Krönikon*, also supposed to be a product of Westgothland, written 1320 and *Karls Krönikon*, written in 1452 we find abundant endings in *e* and *er*. *Resa* and *reisan* alternate with *rese* and reisen.[19] This shows that the unaccented vowel in the last syllable was of such uncertain sound that it was sometimes written with *a*, sometimes with *e*.

2. The preposition *paa* or *po* occurs much earlier than 1470. *Gamle Eriks Krönikon* written 1320 says, "een draghe laa *paa* meget gul."[20] A letter of 1323 says, "*paa* nogars sida."[21] Another of 1345 says, "*paa* begge arwinghe sidhe."[22]

3. *Opdagelse*. Even if this word were not found at all in the dictionary of the speech of the middle ages, this would be no proof that it was not in use. Literature is not a product of the dictionary but vice versa. As this word represents an uncommon idea (*discovery*) its occurrence in the meagre literature of that time is therefore very infrequent. We find it, however, at least 150 years before 1700, the date set by Hægstad for its earliest occurrence.[23] It is impossible to say how much older it is. It is presumably a loan from the Dutch, where we find it much earlier than 1362. It is reasonable to assume that the runemaster was a mariner, and in that case would be among the first to pick up foreign words.

4. When Professor Hægstad says that the use of singular verbs with plural subjects was first introduced by royal mandate of 1865, it is safe to reply that popular speech takes no cognizance of royal mandates. Linguistic forms are not created in that way. There is a literary style of the scribe and the dialectic form of a district and there may be centuries between the fusion of the two.

The fact that the *literary* form in 1362 was *wi hafdhum* and *wi warum* does not therefore mean that the *dialectic* usage necessarily was the same.

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[18] See *Vestgötalagen*, Collin and Schlyter's edition, 1827. Introduction, pp. iv, v, xi.

[19] See *Medeltidans Rimkrönikor*, Klemming's edition, Stockholm, 1856, ll. 2024, 2996–7, 3286, 3315, 4533, 6271, 9448, etc. See also letter no. 3948a from 1345 in *Diplom. Svecanum*, Hildebrand's edition, where we read "paa begg*e* arwingh*e* sidh*e*."

[20] Molbech's *Ordbog*, p. xlv.

[21] *Diplom. Svecanum*, Hildebrand's edition, no. 2419.

[22] *Ibid.*, no. 3948a.

[23] See Kalkar's *Ordbog*, Copenhagen, Articles *opdage* and *optække*.

Dialectic divergences were just as possible then as now. Although we lack examples from the dialects of that time, it can be proven from the literary language itself that the phonetic usage of the time was *wi hade* (as occurs on the stone) instead of *wi hafdhum*.

This is demonstrated by the following: The common literary forms of that day were, as stated, "wi hafdhum" or "the haffdo." These are the forms which, for instance, the author of *Gamle Eriks Krönikon* (ca. 1320) and other writers of the time seek to use because they are the accepted literary forms of their time. But every now and then we find them using the singular verbs "wi hade" or "the hade." (I have noted about 30 instances but there are many more. The same is true of the letters of that time.[24]) Why does this latter form occur? The reason is that every little while they forget their literary forms and revert to their dialectic. If the dialectic forms were the same as the literary, then of course there would be no explanation for a second form. But this dual usage shows that the one was the literary, the other the dialect form.

Professor Verner Dahlerup has shown in his history of the Danish language that the plural verb forms had been largely superseded by the singular in many parts of the north in 1350.[25]

5. *Thessari* as a feminine pronoun occurs so rarely in the Swedish literature of the XIV century that its sporadic use must be considered as an archaism. In a dissertation of 4 pages in his Swedish dictionary Professor Södervall states that the form of this pronoun is exceedingly variable, but that *thenne* is the most common form even with feminine nouns. This is because the feminine gender was about this time largely superseded by the common.

6. I have not personally investigated how early *äptir* occurs as a conjunction in the Scandinavian tongues. Professor Andrew Fossum has, however, cited numerous instances from the literature of that time, both Danish and Swedish, in which *äptir* occurs as a conjunction.[26] Professor Hægstad is, therefore, in error in this as in all other points he has touched.

7. Professor Hægstad's objection on this point is due to a misunderstanding. "Wi war ok fiske" is not an infinitive but a preterite. It is a dialectic construction of "wi warum (ute) ok fiska (dum)." *Ok* in this sentence is, therefore, a regular conjunction in regular form. This discussion has, therefore, nothing to do with the question when the mark of the infinitive *at* became confused with the conjunction *ok* by common pronunciation.

There is in Europe a number of educators who tied down to their narrow little round of duties have been led to believe, through an unfortunate superstition, that all things American are tinged with humbug. In their puritanical zeal against imaginary errors they *a priori* condemned the Amer-

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[24] See *Medeltidans Rimkrönikor*, Klemmings edition, II. 1514, 2087, 2581, 3414–16; see also letter of 1349 in *Svenskt Diplom.* no. 4503; also *Brandts Læsebog*, pp. 122, I. 16 and 123, I. 10 containing illustrations of *wi hade* from *Mandevilles Reiser*, written about 1400.

[25] *Det Danske Sprogs Historie*, Copenhagen, 1904, p. 33.

[26] See for instance, "æffter han havär fyrst hiemme wärät" quoted from *Riberetten* (XIV century) with numerous other examples by Professor Fossum in the *Norwegian-American*, Northfield, Minn., Feb. 24, 1911.

TABLE OF DALECARLIAN RUNIC ALPHABETS

FOR KEY SEE BOTTOM OF PAGE 269

ican rune stone as a humbug and have, like Professor Hægstad, done their best to sustain their opinion. But the reader will agree that it is but a sorry best as not a single objection is valid.

THE DALECARLIAN THEORY

In an extremely partisan attack on the genuineness of the Kensington rune stone, Professor G. T. Flom[27] waxes almost jubilant over his imaginary identification of the runes and language of the stone with those of the district of Dalarne. He is so cocksure of this comparison that he is even able to state which village in Sweden the supposed forger comes from.[28] This surprising conclusion shows that Professor Flom unfortunately can have no acquaintance with the Dalecarlian runes or linguistic forms. While there of course is some similarity between the various runes and dialectic forms of the different districts of one small nation, nothing could be further as a base of comparison than the Dalecarlian. To make this perfectly clear I have grouped together the alphabets of all the leading Dalecarlian inscriptions so that they can be readily compared with the alphabet of the Kensington stone, which is placed in the first column:

Columns 2–11 are individual Dalecarlian inscriptions while columns 12 and 13 show the Dalecarlian alphabets as arranged by Ihre, Götlin and Liljegren. Column 14 shows the alphabet of the Scanian Law which dates from about 1275.

A brief comparison of these alphabets will show that the Kensington runes have nothing to do with the Dalecarlian. Of the 20 characters found on the American rune stone no less than 13 (*i. e.*, the runes for *a*, *e*, *g*, *k*, *n*, *o*, *p*, *s*, *t*, *v*, *y*, *ä* and *ö*) are different from any and all of the Dalecarlian alphabets, while a fourteenth (the rune for *d*) is different from all but one inscription. These Dalecarlian inscriptions belong in a district which lies about 300 miles north of Westgothland, the home of the author of the Kensington inscription, and is separated from the same by vast forests and a lapse of 300 years. It is therefore not strange that there should be such great divergence. About 200 miles south of Westgothland lies the district of Scandia, where was written the Scanian Law almost 200 years earlier than the Kensington inscription. The alphabet of this is given in column 14. A comparison with this will show that the American runes differ from this in only 7 particulars (the runes for *a*, *k*, *n*, *t*, *y*, *ä* and *ö*) which is commensurate with its nearer approach in time and distance.

When we compare the linguistic forms of Dalarne with those of the Kensington inscription, Professor Flom's theory proves equally untenable.

[27] See note 3.
[28] *Ibid.*, p. 30.

1. The Kensington stone, 1362
2. Bureus, 1599
3. Dragga-Röset, *ca.* 1600
4. The chair of Lillherdal, *ca.* 1600
5. The Orsabeck loft, *ca.* 1635
6. Præstlogens bod, 1706
7. Præstboden i Elfdalen
8. Aasen boden, 1729
9. Baltzar, 1750
10. Runestaff of XVII century
11. A plane from Lillherdal, 1759
12. Ihre-Götlin, 1773
13. Liljegren, 1832
14. The Scanian Law, *ca.* 1275

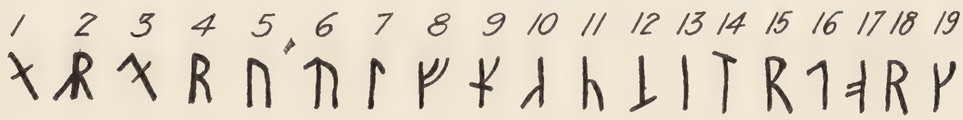
The most prominent difference is that while our inscription abounds in aspirates such as *hem*, *har*, *hade*, *dagh*, *havet*, *öh*, *ahr*, etc., the *h* is totally lacking in the Dalecarlian speech.[29] Besides that the word forms are different throughout. If the inscription were in Dalecarlian dialect we would have *ema* for *hem*, *ör* for *ahr*, *ela* for *illy*, *sen* for *havet*, *menn* for *man*, *bluäd* for *blod*, *kumo* for *kom*, *ver* for *vi*, *sker* for *skjar*, *sjaa* for *se*, *vesto* for *vest*, *nordo* for *norr*, *resa* for *rise*, *voro* for *var*, *duä* for *ded* and *esu* for *deno*.[30] No Swedish dialect lies further from the Kensingston inscription than the Dalecarlian.

AN UNDECIPHERED INSCRIPTION

As all the material is here convenient I shall in conclusion call the reader's attention for a moment to a hitherto undeciphered Swedish inscription. It has no direct bearing on the present discussion but indirectly throws some light on the true understanding of the American inscription.

Some time ago while studying in the library of the University of Copenhagen my attention was called to an article by Professor Adolph Noreen, the eminent Swedish runologist, on an undeciphered inscription from Dalarne.[31] Professor Noreen characterizes it as "an inscription which although it was the earliest discovered and earliest published inscription from Dalarne, yet remains undeciphered. . . . And one can surely not wonder therat as almost every rune presents its particular difficulties." Professor Noreen adds that this inscription "for many years has been a vexing puzzle" to him and calls upon other runologists to come to the rescue. Then follows his discussion of it concluding with his opinion that the 3 last characters probably represent *o*, *r*, *k*.

The inscription is a very short one, consisting of 19 characters and looks like this:



It was carved into an old dead pine near a place called *Draggäröset*.

I sat in the library and looked at this inscription for a little while and it seemed to me I could see light in more than the 3 last characters. Professor Noreen was surely right in his somewhat timid conclusion that the 3 last characters represent *o*, *r*, *k*. The *o* is unusual but agrees with the *o* in the XVII century runestaff shown in column 10 of the preceding table. But the other characters, too, seemed intelligible. Some of them are somewhat mystifying, being inverted, fragmentary or being two on one staff,

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[29] For confirmation of this fact see any of the Dalecarlian inscriptions discussed in *Fornvännen*, 1906, Stockholm, pp. 63–91. The *h* is given as a separate rune in 2 or 3 of the Dalecarlian alphabets because of its recognized ancient place in the *futhork* but as h (*haa*) in Dalarne was pronounced *aa* it soon went over to indicate the vowel *aa*. See the table on p. 268.

[30] See Noreen's *Ordlista Ofver Dalmaalet*.

[31] See *Fornvännen*, 1906, Stockholm, pp. 90, 91.

but such freaks are all common in other inscriptions. I therefore wrote out my inscription which I made out as follows:

aer jak rutulf gert it futhork

that is, *Have I Rudolph made an alphabet.*

A few explanations will make this reading clear: Rune 2 is made up of an *e* and an *r* on the same staff; 3 consists of a *j* (see the *j* in column 12 of table) and an *a* on the same staff; 4 is a combination of a *k* and an *r* on the same staff. In 6 we see a union of a *t* and a *u*, and in 9 we recognize a rather infrequent *g* (see columns 2, 3 and 14). Number 11 is an *r* with the upper loop missing, probably not being noticed by the person who copied it from the rough surface of the pine stump. 12 is an inverted *t* being one of 3 different forms of *t's* in the inscription, all being well-known from other inscriptions (see table). 15 is the most difficult character but can only mean *f* and *u*. In that case the lower of the oblique arms of the runic *f* has been turned downward and a *u* has been formed on the same staff. The character would then look like this— —and probably did so on the stump but was misunderstood by the transcriber. The inscription undoubtedly dates from the latter part of the XVI century.

As it seemed strange that a representative of the despised American scholarship should be able at first sight to read an inscription which has baffled the runologists of Europe for years, I showed my reading to several eminent Swedish runologists. They were all kind enough to admit that the puzzle had been solved.

HJALMAR R. HOLAND.

Ephraim, Wis.

INSTITUTE OF HUMAN PALEONTOLOGY AT PARIS.—A notable addition to the facilities offered by Paris as a center of anthropological research is the Institute of Human Paleontology recently founded by the Prince of Monaco. In the new Institute the Abbé H. Breuil, formerly of the University of Fribourg, occupies the chair of prehistoric ethnography, and Dr. H. Obermaier, former colleague of Professor Hoernes at Vienna, that of geology in its relation to prehistory. Professor M. Boule of the Museum of Natural History, Jardin des Plantes, is the director.

CONGRESS OF AMERICANISTS.—The Eighteenth International Congress of Americanists will be held in London May 27, to June 1, 1912. The main topics for discussion will be; 1. The aboriginal races of America; their origin, distribution, history, physical characteristics, languages, customs and religions. 2. The monuments and the archæology of America. 3. The history of the discovery and occupation of the New World.

For further information application may be made to the Secretary, F. C. A. Sarg, Esq., Royal Anthropological Institute, 50 Great Russell St., London, W. C.

CHIPPED POINTS FROM THE YELLOW SOIL. ALL ARGILLITE. ALL FROM LALOR FIELD TRENCHES

GLACIAL MAN AT TRENTON, NEW JERSEY[1]

FOR more than 30 years the delta terrace of gravel at Trenton, New Jersey, has furnished the classical field for determining the existence of glacial man in America. This delta terrace, now largely built over by the city, covers an area of 2 or 3 miles in diameter at the head of tidewater in Delaware Bay. The Delaware River which here empties into the head of the bay flows for its entire distance with a rather steep gradient, through a rocky gorge 200 or 300 ft. deep, and a few hundred yards in width which it had eroded during the long ages of preglacial times. But during the Glacial period the continental ice-sheet, advancing from the north, covered the upper part of the valley to a great depth, extending as far south at one time as Easton, at the mouth of the Lehigh River. But after a somewhat rapid retreat the front rested for a long period 15 or 20 miles farther up at Belvidere, where according to Lewis and Wright a well defined terminal moraine crosses the valley.

The connection of the delta terrace at Trenton with this ice invasion is easily proved beyond all possibility of reasonable doubt. The surface of the terrace is at present 50 ft. above tide. Innumerable sections show that it is composed of beds of coarse gravel and pebbles frequently containing bowlders several feet in diameter, which could have been brought in only by floating ice. Moreover the material of the bowlders and gravel is all such as is derived from the rocks in the upper Delaware Valley and could come into the present position only by being brought down through the present channel. On following up the river, gravel terraces of similar material appear all the way along its sides. In the melting of the great ice-sheet, which covered four or five thousand square miles of the drainage basin, we have the cause, and so far as we can see, the only adequate cause for the transportation and deposition of the Trenton gravels with all the accompanying phenomena. And in fact no geologist disputes the glacial origin of this Trenton delta terrace. It corresponds closely to what I have observed in every south flowing stream coming out of the glaciated area between the Atlantic Ocean and the Mississippi River. For an enumeration of the localities see page 326 of the 5th edition of my *Ice Age in North America.*

The question is, have remains of man been found in the undisturbed strata of this gravel deposit at Trenton? Over this question of fact an acrimonious controversy has raged for more than a quarter of a century. And even now several of the reviewers of my *Ice Age in North America* express doubt as to the sufficiency of the evidence that man was in North America during glacial times. It is of the first importance, therefore, that we canvass thoroughly the evidence of fact here in question. Have remains of man been found in these gravel strata of Trenton, in such situ-

[1] *The Archæology of the Delaware Valley.* By Ernest Volk. Vol. V of the Papers of the Peabody museum of American archæology and ethnology, Harvard University. 2 maps 125 plates, 26 illus. in the text. Pp. xvi, 258. Cambridge, Mass. Published by the Museum. 1911.

ation that they must be coeval with the deposit? If so, the existence of glacial man in America is proved. It is a simple matter of evidence.

Limiting ourselves to the most salient points of evidence, we have first and foremost that of Dr. C. C. Abbott, of Trenton, who began the study of these gravels as early as the year 1875, and soon after reported a number of artificially chipped stones which he found in undisturbed strata as many as 12 ft. below the surface. Meanwhile Professor Putnam, at the head of the Peabody Museum, Cambridge, Massachusetts, made him a member of the staff of that Institution and for several years Abbott's discoveries and reports were all sent there so that to see the results of the earlier explorations one must go to Cambridge, where he will find an immense collection of implements, the most of which were found upon the surface, but a goodly number of which were reported as found in the undisturbed gravel of glacial age. Setting aside several hundred implements of a peculiar character found in the talus but which had presumably come from the lower strata of gravel, 60 implements were reported by him in 1888 as having been found in place in undisturbed strata of the gravel, some of which were as much as 22 ft. below the surface. All these discoveries were duly reported in the publications of the Peabody Museum and his entire work was summarized in a volume of several hundred pages entitled *Primitive Industry*.

But in order to make the conclusion doubly sure, Professor Putnam, in 1889, commissioned Mr. Ernest Volk, a most conscientious and competent investigator, to work over the field independently, so that the facts might be established by more than one witness. For 20 years Mr. Volk continued his painstaking and laborious investigations, the results of which have just appeared in volume 5 of the *Papers of the Peabody Museum* and which gives everything that can be desired. The volume consists of a diary kept during the entire time, detailing the individual discoveries and describing the situation in which each was found, while 150 photographic illustrations put the reader in possession of the original facts as fully as they can be preserved. Mr. Volk's explorations may be divided into three classes.

1. *That of the present flood plain of the Delaware, extending from the bluff to the bay.* As these deposits are confessedly post-glacial we need not consider them here except to say that everything disclosed in that field clearly belong to the modern Indian epoch.

2. *Personal excavations in the upper 4 or 5 ft. of the Trenton terrace.* This he denominates the "yellow drift," concerning the origin of which there has been some dispute. This deposit everywhere caps the coarsely stratified Trenton gravel and is itself composed of fine material, with, however, occasional pebbles and bowlders of considerable size which apparently must have been brought in by floating ice. By some geologists the theory is advanced that this superficial blanket of finer material is a wind deposit subsequent to the direct glacial deposition. On the contrary, it is maintained by Mr. Volk and various geologists who have given special attention to the subject (including Professor J. Edmond Woodman, Professor Arthur Hollick, Professor William Libbey, and Professor G. F. Wright) that

LALOR FIELD. "PROFESSOR HOLLICK'S SPECIMEN," SEPTEMBER 13, 1897

this is a natural deposit of the closing stages of the delta building when, as was inevitable, the water over it became shallower and slower moving and the top of the deposit was about at water level. But as the volume of water was still subject to abrupt fluctuations it would occasionally bring in masses of ice containing bowlders and pebbles to be stranded in the midst of the finer material. One such bowlder was found 100 ft. inland from the bluff and 14 in. down in the undisturbed drift, which was 2 ft. 2 in. long, 2 ft. wide, and 10 in. thick. Another found 2 ft. below the surface in undisturbed yellow drift lying between two strata of clay was $8\frac{1}{2}$ by $7\frac{1}{2}$ by 3 in. in diameter, while numerous others of equal and larger size were found scattered over the surface.

While the stratification of this superficial covering of yellow drift is not always readily apparent to the eye, a series of red bands composed of red clay, iron, sand, and minute water worn pebbles of red shale does appear whenever excavations have been made in it. On analyzing these various bands it was found that the upper ones contained from 27 to 37 per cent of clay, 6 per cent of iron, and the remainder sand and pebbles, while the lower bands showed only 4 per cent of iron and much clay is found in the sand between the bands. This is justly considered by Mr. Volk to be inconsistent with the theory of wind deposits. On June 25 and again September 13, 1897, Professor Arthur Hollick, Professor William Libbey, Mr. Henry C. Mercer, Dr. C. C. Abbott, and Professor G. F. Wright spent several days at Mr. Volk's invitation to witness his explorations. Mr. Volk had already dug over large areas of this yellow drift and as a result of his work was prepared to say to us "choose for yourselves any places you please in the areas of this undisturbed yellow drift and I will guarantee the following results: in the upper 10 in. you will find numerous jasper and flint implements of modern Indian type and some pieces of pottery but below this depth you will not find anything of that sort except possibly in pits showing clearly disturbed material. But below the upper foot of surface material you will find an occasional chipped piece of argillite giving indubitable evidence of human workmanship. The point established by these investigations will be that in the earlier or glacial stage of occupation this field was occupied by a race who had not discovered the quarries of flint and jasper to which the modern Indian resorted, nor had they learned to make pottery but were limited for their weapons and implements to the coarser argillite which crops out in large masses 20 or 30 miles up the river and is found in numerous bowlders brought down by the glacial torrents." (In passing we should say that argillite is a clay or slate deposit which has been metamorphosed by the heat of the trap dykes which intersect it at various places higher up in the Delaware Valley. This breaks with conchoidal fracture somewhat as flint and quartzite do, but is capable of being worked only into very rude implements.)

This guarantee or "prophecy" of Mr. Volk, was amply fulfilled. Numerous Indian remains were found everywhere in the black soil on the surface while at various depths from 10 to 32 in. below the black soil argillite flakes and implements were found between the red bands of the yellow drift. One artificially chipped specimen of chert was also found. A full report of these investigations is printed in the *Proceedings of the American Association for the Advancement of Science*, 46th Meeting held at Detroit, August, 1897, pp. 344–390.

The theories adduced to account for the occurrence of these argillite implements in the yellow drift otherwise than through the closing floods of the glacial inundations, when the delta had been built up nearly to its limit, are very easily made to appear inadequate. The soil is not one which opens in cracks as clay deposits do, so that they could not have slipped down in them, while if as some supposed the implements had worked down through openings made by the decay of the tap roots of trees there is no reason why the flint and jasper should not have followed the example of

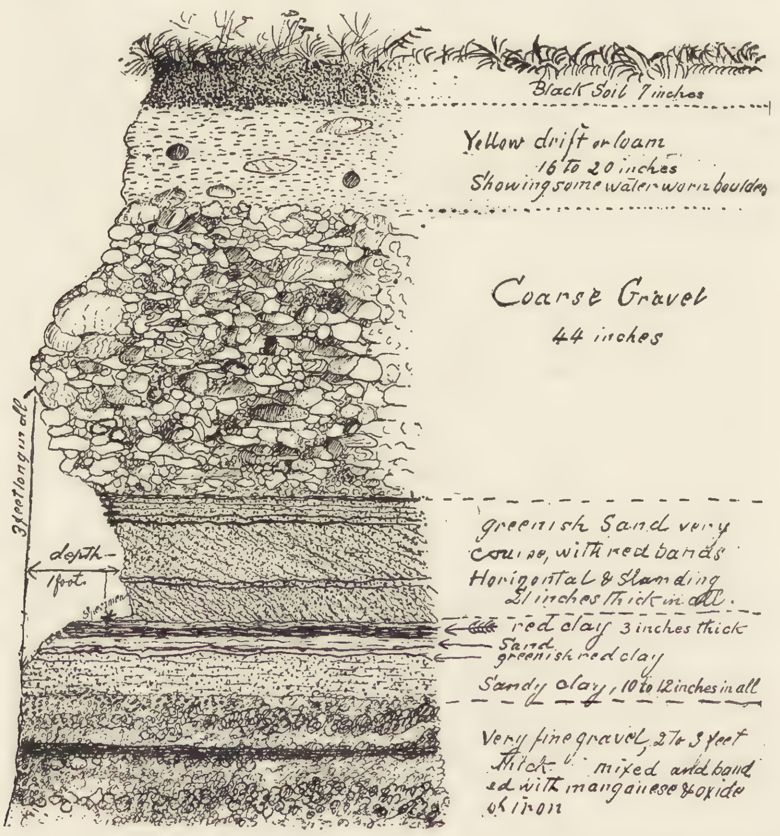
"RAILROAD CUT." WHITE PAPER MARKS THE SPOT WHERE THE CHIPPED PEBBLE WAS FOUND, DECEMBER 9, 1899

the argillite, since their specific gravity is greater than that of argillite. On the other hand this "yellow drift" is precisely like that which accumulates over the flood plain of every large stream and is too uniformly distributed to have been brought in by wind, since there is nowhere over the area anything like dune accumulations.

At any rate these investigations amply sustained the early contention of Dr. C. C. Abbott that there was a sharp line of demarcation between the earlier occupation of the Delaware Valley when argillite only was used for implements and its occupation by Indian tribes who had discovered flint and jasper and made use of pottery.

3. *The traces of man and animals in the stratified gravel and sand older than the yellow drift.* Meanwhile Mr. Volk had continued to visit the openings which were from time to time made in the coarsely stratified glacial gravel that constitutes the main mass of the Trenton terrace, and concerning whose glacial origin there is no dispute.

Passing over all the discoveries of lesser importance, it is profitable to concentrate attention upon the occurrence of a human femur which was found in place in an unquestioned deposit of glacial gravel on the 1st of December, 1899. Of this Mr. Volk has given a very minute description. The bank



CROSS SECTION FACING EAST. RAILROAD CUT SOUTH OF HANCOCK AVENUE
* SHOWS POSITION OF HUMAN FEMUR, DECEMBER 1, 1899

in which the specimen was found was one which had been freshly exposed in a railroad cut where 44 in. of coarse gravel, with pebbles averaging from 4 to 6 in. in diameter (while one was 15 x 9 x 4 in.), overlay a stratum of sand 2 ft. in depth, which in turn rested on coarse gravel. This stratum of sand in which the bone was found was 7 ft. 7 in. below the present surface, but, as the surface was here in a depression 10 ft. or more below the general level of the terrace, the stratum in which the implement was found is really that which is 20 ft. below the general surface, as I have been accustomed to state. On page 521 of the first edition of my *Ice Age in*

North America will be found a photograph of the face of this gravel pit as it appeared 10 years before. When the specimen was found, excavations had carried the face back more than 100 ft. On page 41 of the RECORDS OF THE PAST, January, 1911, is a photograph of the pit as it appeared 10 years later.

In saying that this bone was found by Mr. Volk in place it is necessary to qualify this statement by giving his exact words:

December 1, 1899. Went to the railroad cut this morning, stopping in the sand pits on Hancock Street. The sun, striking the railroad fully, had melted the early frost, which had been sufficient to make about one-eighth inch ice on the water. The bank was active, that is, the sand was continuously running down. The gravel overlying the stratum of sand did not move, being firmly cemented by oxide of iron and manganese. The stratum of sand underlying the heavy gravel is not cemented but is stratified with thin bands of clay and iron dipping to the east, one-eighth of an inch thick and 2 to 3 in. apart. The sand between these bands is only held in place by moisture. The slight frost during the night, now melted, had loosened the sand and it was leaving its place between the thin red bands as fast as the sun was drying up the moisture. A week or so previous to December 1 there was a heavy rain from the south, which, having run down the bank (not sufficient in force, however, to dislodge the heavy gravel nor the yellow soil above it) but washing a gully deep into the sand underlying the heavy gravel. This gully is 2 ft. up and down and 5 to 8 in. broad, and ends on the heavy stratum of yellowish green clay as firm as a rock. This little washout or as I have called it, gully, was a little over a foot deep in the bank. Now, in this little gully, in a heap of loose sand, probably a coffee-cup full or two, I saw some white object, partly covered by sand, still running down from above and fast covering the white object. The object (a bone as I found it was after picking it up) was one foot inward from the face of the bank, between two little pebbles, one a quartzite (slate color), the other on the right a little darker, of the size of a walnut each. I picked it up, there were two pieces, a large and a smaller one; picked up the larger one first, then the smaller came to view; picked this one up too, the large piece touching the little pebble on the left. Now I took careful measurement and found that this bone was 7 ft. 7 in. below the present surface, in a stratum of sand 2 ft. thick, 1 ft. inward of the present face of the bank, between two little pebbles. The little pebble on the left showed a white mark. I thought that this white mark was from the bone that must have struck this little pebble as the large piece of it was in contact with this very pebble on the left. About 4 in. over or above the bone, in the little gully, was a place about the length of the bone where it evidently had fallen out of. Realizing the importance of the bone, I took careful measurement, after which I rolled a big stone on the bottom of the bank, marking the place also with the trowel cutting into the clay bank below, wrapped the two pieces of bone in my handkerchief so that they would not touch, and started home for the camera. On my return, after focussing the place, I laid the large piece of bone down at the exact spot where I had picked it up (the smaller one was left at home) and photographed it (see Plates LXXXIX, XC, and XCI). While photographing, the sand continuously kept running down along the whole bank. After photographing I again wrapped the bone in my handkerchief. I searched the little pile of sand in which I had found the two pieces and found two small fragments of bone. Nothing more was found. These apparently belong to the others. The bone appears water-worn and sand scratched. I handled them very carefully, as carefully as I could, even carried them wrapped in the handkerchief in my hand, not putting them in my pocket, for fear they would rub against each other At home I laid them into a pasteboard box in cotton and sat down to write to Professor Putnam about my grand find. The bones were not touched any more until I packed them and sent them away to Cambridge.—[From field journal.]

According to the report of Dr. Aleš Hrdlička, this bone is "a part of a shaft of a left, and, so far as can be seen, adult and normal human femur.

. . . . From a purely anatomical standpoint the bone is in no way specially remarkable. The proportions and the structure of the shaft, its thickness and the size of the medullary canal, agree with the same characteristics in average American femora." "The piece of bone is apparently very much altered chemically. Its color and consistence are those of a slightly dirty chalk. . . . . Besides the above characteristics the specimen shows a number of artifacts. The piece has been cut in a regular way inferiorly, and at least partly cut or bevelled superiorly. The upper part of the medullary canal looks as if it had been gouged out." "The determination of the age of the two bones, however, must be based principally on their location with regard to geological formation" (pp. 244–247).

It is not necessary to go farther into the evidence that man was coeval in America with the closing scenes of the Glacial period. This evidence is sufficient to silence all objections and to remove the *a priori* presumptions which have influenced many to discredit the discoveries of Dr. Abbott, Professor Mills, and others. Glacial man in America like his compeer in Europe is a fact with which we must reckon in all our efforts to reconstruct the early history of the human race.

Slight as is the evidence concerning the characteristics of the prehistoric tribe that frequented the head of Delaware Bay in glacial times it is by no means insignificant. The absence of pottery and of implements made from flint and jasper from all the strata of the Trenton gravel below the thin superficial covering of the surface, is very significant. Glacial man had not yet discovered the fine deposits of flint and jasper, some distance up the Delaware Valley, which were quarried extensively by modern Indian tribes and worked into very delicate spear and arrow heads, nor had he invented processes for the manufacture of pottery. For implements he was limited to the use of the coarser and more intractable argillite found 20 or 30 miles above Trenton in the vicinity of the trap dykes that traverse the region, and in bowlders from the same region which were brought down by the floods and scattered over the Trenton terrace. Bones, however, both of animals and men were made use of as implements.

Some have endeavored to belittle this evidence by speaking of the argillite implements found at Trenton as "rejects," such as are found in abundance around Indian workshops. But rejects are of artificial origin and are as good evidence as any of the presence of man. The inferiority of the implements found in the Trenton gravels may be due to the inferiority of the material from which they are made, but they certainly have more resemblance to the so-called palæolithic implements of Europe than they do to the implements of the modern Indian. The geological position in which they are found is, however, of more importance in determining their age than is the type of implement. If we are permitted to speak of the manufacturers of these implements as glacial men we are not specially concerned with the question whether or not his implements shall be classified with the so-called palæolithic implements of Europe. They certainly are rude enough to be palæolithic; while the implement discovered by Mr. Mills in glacial gravels at Newcomerstown, Ohio, made from flint found in the

Mercer limestone is as perfect a replica of the palæoliths found at Amiens, France, as could be desired.

The infrequency with which human and animal remains are found in the Trenton gravels is accounted for by the small ratio which they bear

THE TWO PIECES OF THE TRENTON-FEMUR IN THE CENTER, SHOWING THE INTERNAL STRUCTURE. CORRESPONDING PORTIONS OF FEMUR OF AN INDIAN FOR COMPARISON ON LEFT AND RIGHT

to the entire deposit. Looking for these remains in the gravel is like looking for a needle in a haymow. The chances of finding an implement in place are very slight. But while others, like myself, may have made numerous occasional visits and failed to find specimens in place this should

furnish no reason to question the discoveries of Dr. Abbott whose opportunities for observation were a thousand times greater than ours, and whose eye was trained to detect the slightest indication of human workmanship. Nor is the experience at Trenton very different from that at Amiens in France. I, too, as well as some of my acquaintances skilful in such investigations, have repeatedly visited the gravel pits at Amiens without making any personal discovery. Indeed, as Reinach remarked to one of us scarcely any discoveries have been made at Amiens by trained investigators. So infrequent are the discoveries there that a man of science would need to camp down upon the spot and live a hermit's life for an indefinite period if he would hope to find an implement in place. Almost all of the implements at Amiens have been found by the workmen who are handling the entire output of gravel. It is not to be expected that human remains should be distributed through these immense deposits of rapidly accumulating gravel as frequently as trilobites are in the slowly accumulating beds of Silurian limestone.

Of course the discovery of the remains of glacial man in Trenton gravels does not tell us how long man had been on the continent previous to the closing floods of the period. That is left to conjecture and to inferences drawn from various general considerations. But the evidence reveals to us man in the Delaware Valley living in about the same conditions as those which surround the Esquimaux in Greenland at the present time. Like the Esquimaux he was ignorant of the use of metals and his implements were limited to those made of a poor quality of stone and of bones both of man and animals. Moreover, he was associated by very much the same class of animals as are found in Greenland at the present day, with the addition of the mastodon, whose tusks are found in the Trenton Valley. The walrus, the Greenland reindeer, the caribou, the bison, the moose, the musk-ox, and the mastodon have all of them left their remains either in the superficial gravel deposits of southern New Jersey or on the adjoining country to the south and west.

The picture of human life at that period in the Delaware Valley is substantially the same as that presented by the archæologist of Europe, for southern England, and northern France in the declining years of the Glacial period. Evidently in America as in Europe the Glacial period marks a great cleavage in the progress of prehistoric man. There is much convincing evidence to show that glacial man, both in America and in Europe, shared the fate of the large number of animal species which during that time became extinct, either throughout the world or in the areas occupied by man at the time. In North America the camel, the hippopotamus, the rhinoceros, the tapir, the mammoth, the horse, and the mastodon were abundant at the beginning of the Glacial period. Their complete extermination in connection with it is one of the most startling facts in geology. The sharpness of the transition from the argillite implements in the Trenton gravels to the implements of different material and of modern Indian type found upon the surface, seems to indicate an absolute distinction between the two succeeding races, with an interval of indeterminate length.

George Frederick Wright.

PALESTINE AND ITS TRANSFORMATION[1]

MORE and more geology, geography, and climatology are shedding light upon the early historical periods of Central and Western Asia and of the Mediterranean basin. In all these regions the golden age is in the past. Everywhere there vast empires have crumbled to dust, and high civilizations have given place to civilizations of lower order. This is preëminently the case in Palestine. From about 1200 B. C. to the early part of the Christian era, Palestine supported a population of 2 or 3 million people, producing a history of surpassing interest and a religion and literature that have conquered the world. The treasures of Palestine carried away by Pompey were sufficient to enrich all Italy; while at the present time its population is scarcely more than half a million, and its people are in general poverty stricken and dependent for support in no small degree upon the wealth brought in by pilgrims and tourists.

There are two theories to account for this transformation. First, that the decline is the result of desert conditions produced by a diminution of rainfall. Second, that the decline is due in large measure to bad political and social conditions and the accompanying impoverishment of the natural resources through the short-sighted and wasteful policy of the inhabitants in appropriating the stored up riches of the land.

Mr. Huntington is an ardent advocate of the first theory, and probably is better prepared to present it than any other person who has written upon the subject. For several years he was under commission from the Carnegie Institution to study the geographic and climatic conditions of Central Asia, the results of which were published in a volume entitled *The Pulse of Asia.* In this volume he maintained that for the last several thousand years there has been a gradual desiccation of the climate of Central and Western Asia interrupted, however, by numerous pauses and reversals when for a longer or shorter time the rainfall has for some reason increased, producing a "pulsatory" movement that has given rise to the title of his book. Evidence of such a pulsatory movement in the decline of the rainfall is thought to be found in the abandoned shore lines of numerous lakes in Central and Western Asia, among which may be mentioned Lob Nor, Seyistan, the Caspian Sea, Lake Buldur in Central Asia Minor, Lakes Urumiah and Van in Persia, and the Dead Sea. In all these cases there is clear evidence that the water formerly stood at a much higher level than now, which, since they are enclosed basins, would indicate a greater rainfall in former times.

But it is not so easy to get evidence of a temporary rise in the water of these lakes as it is of its gradual diminution. The higher shore lines in all these lakes carry us back to the Glacial period and connect themselves

[1] *Palestine and its Transformation.* By Ellsworth Huntington, Assistant Professor of Geography at Yale. 39 illustrations—plates, maps and plans. Pp. xvii, 443. $2.00 net. Houghton Mifflin Co. 1911. Boston and New York.

with the climatic conditions of that prehistoric age. Apparently the lower shore lines are connected with the decline of the Glacial period and its accompanying climatic changes. For example, at the culmination of the Glacial period the water over the Dead Sea reached an elevation of 1400 ft. above its present level, forming a lake 200 miles long and 25 or 30 miles wide with a maximum depth of 2800 ft. At a later well-marked stage this lake had declined till its shore line was only 650 ft. above the present level. Below this there are various shore lines at 210, 170, 145, 115, 90, 70, 55, 40 and 12 ft. Similarly Lake Buldur is surrounded by clearly marked shore lines at elevations of 750, 460, 400, 100 and 35 ft. Between these, especially near the present level, there are numerous minor strands representing more temporary changes of the water level.

The question touching historical problems is: Do these lower shore lines represent changes within the historical period, or are they mainly to be relegated to the time of the climatic changes connected with the closing stages of the Glacial epoch? Mr. Huntington would class many of these later changes as belonging to the historical period. With him would agree authorities no less distinguished than Livingston, Reclus, Fraas, Hull, and Fischer. On the contrary Ankel, Conder, Hilderscheid and Wilson, all of them writers of the highest authority, believe that the present level of the Dead Sea has remained substantially constant from the earliest historical records to the present time. These latter maintain, what is evident, that any marked increase in the rainfall over the Jordan Valley would result in a great increase of the size of the Dead Sea. But this seems incompatible with the facts recorded in connection with the expedition of Chedorlaomer, with the crossing of the Jordan by the Children of Israel opposite Jericho, and the expedition of the Moabitish kings around the southern shore and up onto the Judean highlands from Engedi.

Nevertheless, the evidence adduced by Mr. Huntington showing that there was a greater rainfall in Palestine in the early portion of the historic period than now is very strong and difficult to answer.

The climate of Palestine is determined by the location of the country, which is "normally at the southern edge of the zone of prevailing westerly winds, where rain is supplied more or less abundantly by cyclonic storms of large dimensions moving for thousands of miles from west to east. During the summer, this zone is deflected so far to the north, that its place is taken by the rainless sub-tropical zone of dry descending air, or by a modified form of the trade-wind belt, where the winds blow prevailingly from a northeasterly quarter. In the case of the zone of descending air there is no rainfall, because, as the air comes down, it becomes warmer, and hence relatively drier, so that it absorbs moisture instead of giving it up. In the case of the modified trade-winds, air from the east has blown over the dry interior of Asia, and has had no opportunity to collect moisture. That from the north has had scarcely better opportunities than that from the east; and as it is also moving into warmer regions, where its capacity for holding moisture increases, it, of course, gives up no rain. Thus Palestine has a long dry season from April to October, and a rainy season during the other half of the year. . . . Under the influence of the prevailing

westerly winds of the winter a large portion of Palestine has quite as much precipitation as most parts of England or of the eastern United States. Unfortunately most of it comes in the form of rain and hence runs off faster than if it were snow. The long dry season renders irrigation advisable wherever possible, and indispensable in many places. On the plateaus the porous nature of the limestone, and the small amount of level land prevent irrigation. Hence the inhabitants depend now, as always, upon 'the rain of heaven.' The people store it up in cisterns for the use of themselves and their cattle during the long dry summers, and trust the efficacy of prayer to supply a due amount for the crops in the late fall and early spring" (pp. 256–258).

It would thus appear that a slight shifting of this climatic zone north or south would affect not only the rainfall of Palestine but an extensive area in the same latitude. Mr. Huntington maintains that this cause has affected the rainfall over a very extensive region extending far into Central Asia, where a change of only 2 or 3 degrees F. in the mean average temperature would produce marked changes both in the rainfall and in the evaporation of the region. Moreover the principal disadvantage in the climate of Palestine today arises not from a small amount of rainfall but from the time of year in which it occurs, for the rainfall at Jerusalem averages 26 in. per year, which is about the same as that which occurs in London and is more than that of Berlin or the state of Minnesota. But the most of the precipitation in Palestine occurs during the winter months from November to April and so, if it is permitted to run off, is not available for vegetable growth during the summer months, and only partially available during April and May. It is the former rains, occurring in November, and the latter rains in April and May which are of most importance in Palestine. The first starts vegetation in time for the perfection of the crop and the second furnishes the moisture for its completion. The change in precipitation which Professor Huntington's theory would require is simply a slight lengthening of the season at both ends, and nothing more radical than this is supposed by him to have taken place.

The evidences of a moister climate in early historical times are both historical and monumental. The historical evidence is drawn from statements concerning the former population of the region. Accepting as correct the Hebrew text of Deuteronomy which states that the number of men which came into Palestine able to bear arms was "603,550 besides women and children," this would mean a total of between 2 and 3 millions, a number which was probably equalled in the time of Christ. While in David's time, according to the census taken by him, the population of the kingdom was between 5 and 6 millions. But it should be observed that the best Hebrew scholars regard the Hebrew text of the numbers in Deuteronomy as of doubtful authority, owing to the ease with which units and multiples of 10 may be confused in transcription, while the kingdom of David extended over a much wider area than is covered by modern Palestine.

The monumental evidence consists of extensive ruined cities and villages which are especially abundant in South Palestine and east of the Jor-

dan together with ruined aqueducts and cisterns which would be entirely useless in the present climatic conditions. East of the Jordan also there are numerous remains of Roman bridges, spanning the beds of dry streams where now scarcely any water flows even in wet seasons. Still admitting that Palestine formerly supported a population several times larger than it does at present the question remains whether that might not have been the case under the climatic conditions of the present time. Mr. Huntington maintains that that would be impossible. Those who hold that it would be possible, however, make out a fairly good case by several cogent considerations.

First, attention is called to the extensive means formerly used to store up the water supply for use during the period of the uncertain "latter rains." Numerous abandoned reservoirs abound throughout the country, which might have been sufficient to supply by irrigation the water needed in case of failure of the latter rains. Dr. Marsh calls attention to such in the vicinity of Petra, which even now are partly full of water but have long since been abandoned. The necessity of deep wells in the earliest historical period to supply flocks and their keepers with water during the dry season is apparent from the history of Jacob, who dug the well at Sychar, and from various other episodes in the lives of the patriarchs.

Secondly, the present barrenness of Palestine can be accounted for by the loss of the surface soil through the neglect of the terraces by which it was formerly held in place. Any traveller in Palestine can see the remnants of terraces which formerly made hillsides fertile which are now perfectly barren, the soil having been long since washed away and carried down to sea-level. In Palestine the process has been completed which is going on in our own country and is so alarming to the advocates of the conservation of our agricultural resources.

Third, the deforestation of the country has diminished its productivity in two ways. It has facilitated the washing off of the soil to which reference has just been made, but still more it has permitted the moisture which fell upon the region to run off rapidly to lower levels. The great service rendered by forests is not, as has sometimes been supposed, by increasing the rainfall, but rather by conserving it. The rootlets of the trees and shrubs hold the soil in place and so prevent the water from running off too rapidly after rains and delays its evaporation. A covering of soil protected by forests is equivalent to a reservoir, and so in Palestine by slightly delaying the droughts of the summer months would render the danger from failure of the latter rains less imminent.

The evidence of the former existence of extensive forests, where now the whole region is barren of trees, is abundant. In Joshua 17:14–18 we read that the children of Ephraim and Manasseh, who were assigned to what is now known as Samaria, complained that their allotment was not large enough. Whereupon Joshua answered "get thee up to the forest, and cut down for thyself there in the land of the Perizzites and the Rephaim." The children of Joseph also said "the hill country is not enough for us." Whereupon Joshua answered in substance cut down the forests and it will be sufficient for you.

Professor Huntington, however, points out that the word translated forest is quite indeterminate and probably refers not to a heavily timbered region but to one which is covered by a scrubby growth of lentisk and dwarf oak. Furthermore, he emphasizes the fact that even these had all disappeared during the early stages of Israel's occupation and so could not directly account for the fertility in the time of David and onward. But it is significant that the soil which had been held in place by these forests was further held in place at the outset by the industry of the people in constructing terraces for the location of vinyards, fig gardens, and grain fields. "Wine presses hewn out of the solid rock, banks of stones built up for threshing floors, primitive cistern, etc.," are still found wherever one ascends a mountain peak in Palestine.

Another striking testimony to the former existence of forests is that of Professor H. C. Butler, an archæologist of Princeton, who reports "in North Syria, that is, north of Damascus, structures of all kinds depended upon wood from the I century to the beginning of the VII, but not thereafter. East of Lebanon every house, large and small, and even stables, employed large beams, as is shown by holes in the walls. Many edifices may have been built largely of wood, but these of course, have entirely disappeared. Only the stone buildings remain, but even in these the architect sees clearly that beams were employed, some of them being 20 in. in diameter. This was true everywhere in North Syria, but especially among the mountains northwest of Palmyra. Today the mountains are devoid of forests" (p. 284).

It is not necessary to more than refer to the cedar, fir, and algum forests of the Lebanon Mountains in the time of Solomon. At the present time only a few small groves of cedar remain and they are protected as sacred places. But in Solomon's time 70,000 lumbermen and 80,000 carpenters were employed in these forests to prepare and transport the timber for the building of the first temple. Professor Huntington endeavors to minimize this evidence from northern Syria by calling attention to the fact that in South Syria no wood was ever employed in building but everything was made of stone, the basalt in the region being readily broken into blocks which could be used for beams or door posts. Still, in South Syria there is the same evidence of a decline in civilization after the VII century of our era that there is in the north. Hence he reasons that the destruction of forests cannot have been the cause. At the same time one cannot but be impressed that "in North Syria, among the limestone hills, the slopes were formerly terraced for orchards or fields. Some of the terraces were from 10 to 25 ft. high. Now they are broken; and most of the soil has been washed away to the lowlands" (p. 286).

In proof of the diminution of rainfall in the southern part of the region east of the Jordan, Professor Huntington points first to numerous stream-beds large and small. Yet in the winter of 1904–05, which he says was the wettest for decades, scarcely a drop of water flowed in most of the channels in the interior of the country. But in the days of the Roman occupation it was deemed necessary to build bridges to span these dry streams. At Burak, 40 miles south of Bosra, a sturdy bridge stretches its arches across

a channel of gravel; while still farther east three Roman bridges span river beds that are now always dry. Again, ruined spring-houses and bathing establishments are found in regions where now no water can be obtained. A bathing establishment was observed 50 miles southeast of Bosra and 30 miles east of the caravan route to Mecca in a place which today is absolutely dry. A well 100 ft. deep and 8 ft. in diameter was without water even in the moist season of 1904–05.

Further evidence of a greater rainfall towards the beginning of the Christian era is drawn from the numerous ruined cities and villages of the region, indicating a population which could not be supported under present conditions. The ancient city of Bosra covered an area 25 times that of the present disconsolate village, indicating a population of 35,000 or 40,000. The ancient hippodrome provided seats for 25,000 and the theater for 9,000. Whereas the present population is only 1500, all of whom get their water from a single spring during most years. The ancient Philadelphia, 50 miles south of Bosra, has been repeopled by a colony of Circassians, which has been specially protected by the government for 25 years. But the water supply is so poor that the colony does not flourish, whereas in ancient times the population was so great that a theater 300 ft. in diameter with 45 rows of seats, and holding 12,000 people was built for their accommodation.

And so throughout the region Professor Huntington found that a strip about 15 miles wide running north and south on the western edge of the plateau east of the Jordan is fairly well watered at all times. Another strip of about equal width has intermittent moist and dry seasons making agriculture precarious. Further eastward a strip of indefinite width is fit only for grazing purposes during portions of the year, and is sometimes almost entirely barren, graduating into the arid desert which stretches onward to the Persian Gulf. Professor Huntington supposes that at various early times within the historic period a moister climate has greatly extended these fertile belts and so made possible the density of population indicated by the ruins throughout the region.

Others, however, would account for the decadence of the population by the unfavorable social and political conditions. There is much truth in the saying of a French writer that the "nomad brings the desert with him." From the earliest times we read of incursions into Palestine by the nomads from the east. In Judges 6:5 we read that the Midianites, the Amalekites, and the Children of the East came as far as Gaza with their cattle and their tents and were "as locusts for multitude." "And they came into the land to destroy it." This reads very much like a description which Professor Huntington quotes from Professor Butler of an incursion of the nomads into the fertile portions of Moab. In 1905 Professor Butler's party experienced an extensive snow storm on the plateau 40 or 50 miles south of Bosra. So deep was the snow that the horses were prevented from grazing, and the cisterns remained full for months during the succeeding season; but in 1909 in the same region no water was found in most places.

"Because of the drought the great tribes from the interior swarmed over the grainfields of Hauran. Not far from where the horses pawed the snow

in 1905, the Princeton party in March, 1909, camped at a place called Koseir el Halabat. In scouring the country roundabout for a chance pool of drinking water for the thirsty horses, Professor Butler's men noticed hundreds of storks and cranes flying toward a certain spot. There they found a pool of clear water, about 200 ft. long, 20 ft. wide, and 3 ft. deep. The next day at about half-past eight in the morning, one of the great desert tribes came streaming in from the southeast. Thousands and thousands of camels passed by. Far as the eye could see they stretched away into the wilderness. Scattered at intervals of 100 or 200 ft. they stalked by, hundreds abreast, bending their sinuous necks and sticking out their tongues to crop a bit of dry bush from ground which looked absolutely barren. For fully 9 hours, till half-past four, the monster procession continued to pass. When the horses of the archæologist were taken to the pool that night, nothing remained except a muddy hollow, trampled by the feet of 10,000 camels. The beasts passed on towards Gilead and Galilee. Passing through southern Hauran, they ate the grainfields to dust, even as they had drunk the pool to slimy mud. The poor villagers shot at the Arabs, and then ran into their villages for shelter, much as the people of old Edrei probably did when they took refuge in their caves and passageways. Soldiers were sent to stop the Arabs, but in vain" (pp. 300–301).

Without protection an agricultural population is completely at the mercy of marauding nomads. The protection given by the strong arm of the Roman power naturally accounts for the spread of civilization to a considerable extent over the area under consideration. Professor Huntington is confident that the water which used to fill the dry streams of the region necessitating the building of bridges cannot now be drawn off by underground channels. But from what we know of the extent of such channels in volcanic and limestone regions elsewhere it is by no means impossible that they may exist throughout that region, thus accounting for the present conditions.

Apparently Professor Huntington assumes that dry seasons are the only causes which induce nomads to migrate and to send out marauding expeditions. But we are not permitted to overlook the effect of the Malthusian law that everywhere population tends to increase faster than the means of subsistence. While the products of the soil remain approximately uniform, population increases in geometrical ratio, and thus brings it to the brink of starvation and forces it to seek sustenance elsewhere. The action of this law is painfully evident in India and China where the population has reached a density which leaves but a slight margin between years of plenty and years of famine. The consequence is that when there is a comparatively slight shortage of crops the people, not having any available remedy in sight, starve to death by the million every 10 or 15 years. Another illustration is to be found in the present condition of the peasants in Russia. Since the abolition of serfdom the population has doubled in numbers so that the land allotments are insufficient to meet their wants; but, fortunately, the broad plains of southern Siberia are open to them, while the means of communication are so improved that millions of the people can easily and peaceably migrate, thus giving relief at home and building up a

new empire in the east. In England at the present time this pressure upon the means of subsistence by the increase of population leads not to a nomad invasion but to a desperate uprising of the people to compel a division of profits resulting from their handiwork.

In other conditions these necessities have led to vast movements of nomad populations such as were witnessed in the time of Tamerlane, whose hordes abandoned the more constricted areas of northern Mongolia and took possession of the larger and richer irrigated fields of western Turkestan.

The strongest objection to the supposition of a greater rainfall than now in Palestine in the early historic period is drawn from the apparent stationary level of the Dead Sea. Since the area of the Dead Sea is regulated by the equilibrium between the precipitation and the evaporation over the Jordan Valley it follows that if the precipitation has at any time been largely increased the evaporating surface of the Dead Sea would also have to be increased, which could be done only by the rising of the surface causing it to overflow the lowlands around its borders. But, so far as we have any definite facts from which to draw inferences, the level of the Dead Sea has not varied to any great extent during the last 3500 years. So far as the evidence goes it would indicate that in the time of Joshua the level of the Dead Sea was 30 or 40 ft. lower than now. Professor Huntington reports (page 325) that in a series of soundings made by him at the northeast corner of the lake, and extending out a little more than a mile, he discerned "at depths of 20 and 30 ft. sudden irregularities in the slope of the bottom suggesting small strands." While "between the depths of 41 and 48 ft. the irregularities are pronounced for a distance of half a mile. The contour of the bottom simulates that of a series of beaches thrown up one after another in such a way as to form lagoons. The same conditions may be seen along the present shore near the mouth of the Jordan." To be sure this single series of soundings is not sufficient to establish beyond question the existence of such a submerged strand all around the lake but it strikingly agrees with the conclusions which I had drawn in a paper before the Society of Biblical Literature, in January last. In this it was shown that the sediment brought into the Dead Sea by the Jordan and the wadies descending to it from the highlands on the sides and at the south end has encroached upon the area of the sea by pushing out deltas from all the shore lines where the streams enter the sea, thus restricting the original evaporating area to the probable extent of perhaps 25 or 30 square miles. This amount of encroachment was made probable by estimating that the amount of sediment brought in by these contributing streams since the time of Abraham would amount to fully 2 cubic miles; while it was made practically certain by a consideration of the actual deltas and "cones of dejection" which surround the lake on all sides. A striking confirmation of this reasoning is found in the description of the boundary line of Judah and Benjamin given in Josh. 15:2, 5 and 18:19, where it is said that the boundary of Judah starts from a "tongue" of the Salt Sea at the south end and runs westward; while the border between Judah and Benjamin comes down to the "north bay" (tongue) of the Salt Sea at the south end of the Jordan at Beth-hoglah, 5 or 6 miles above the present mouth of the Jordan.

As there is now no tongue of water extending up to Beth-hoglah and none at the south end of the sea it is so significant as to amount to scientific proof that these conditions are exactly met by the supposition that the level of the Dead Sea was at that time 40 ft. lower than now, thus accounting for Mr. Huntington's probable buried strands, and at the same time accounting for tongues of water at both ends of the Dead Sea before they had been obliterated by the deltas which filled them up. Moreover, this theory, according so closely with the results deduced from the action of present natural causes, explains the traditional and historical references to the richness of the plains surrounding Sodom and Gomorrah, if as we believe, they were at the south end of the lake, and to the traditions that they are now submerged somewhere in the shallow water which characterizes the southern portion of the lake. If the water stood 40 ft. lower in the time of Abraham than now, the whole plain south of the Lisan would have been dry land with irrigating streams enough to make it like the garden of the Lord. For the water over this area is now no more than 15 ft. deep, and at certain stages during the last century it is known to have been forded by the Arabs. Indeed, a causeway from the Lisan across to the west side has been recently brought to light. All this indicates a rise of 30 or 40 ft. in the level of the lake since the earliest historical records. On Professor Huntington's theory of a diminution in the rainfall, this rise of the water might be accounted for on the supposition that the sedimentation had more than kept pace with the diminution of the water supply so that with a fairly constant rise of the water level the evaporating area has not increased but rather been diminished.

But taking all things into account the weight of evidence seems to be opposed to Professor Huntington's theory. Briefly stated the succession of events is probably as follows. From 10,000 to 20,000 years ago coincident with the greatest expansion of ice in the Glacial period in North America, Europe, the Lebanon Mountains and the mountains of Central Asia, the valley of the Jordan and the Dead Sea was filled with fresh water to a height of 1400 ft. With the decline of the Glacial period, however, 8,000 or 10,000 years ago the accompanying climatic changes were such that the lake in the valley of the Jordan was reduced to nearly its present dimensions, while at the time of the earliest historical records, about 4000 years ago, the surface of the Dead Sea was 40 or 50 ft. lower than now, though at the same time exposing an evaporating surface at that level as great or even greater than that which it now has. Very likely, at that low level, passage along the shore on the west side was possible along the entire shore line, thus facilitating the entrance of emigrants like Lot to the southern end, and military expeditions like that of Chedorlaomer. But after 4,000 years the action of the natural causes now in operation has so encroached upon the original shore line as to diminish the area of evaporation and cause the water to rise and overflow the surrounding lowlands at the south end so as to keep a fairly constant equilibrium between evaporation and precipitation.

Meanwhile, the forests from the hills and mountains were destroyed, the terraces neglected, thus causing erosion to proceed with abnormal

rapidity, and wash the rocky surfaces bare while permitting the rainfall to run off with undue rapidity. At the same time an industrious population protected by a strong central government has doubtless delayed the natural course of events by terracing the hillsides and by building artificial reservoirs to insure themselves against the failure of the latter rains and so kept up the fertility of the soil. But the constant pressure of the nomads from the east, accompanied with the failure of protection from the central government, has finally so disheartened the agriculturalists, that they have suffered their reservoirs to be destroyed, their cisterns to be abandoned, and their terraces to be broken down. Now for a thousand years since the Mohammedan occupation this neglect has been continuous until the country is past complete resurrection. Something may yet be done to restore the former prosperity, but its complete restoration is probably impossible. After all, man can contend with the forces of nature and bend them to his will more successfully than he can stand up against the cupidity, violence, and chicanery of his fellow men.

George Frederick Wright.

BOOK REVIEWS

THE INTIMATE LIFE OF ALEXANDER HAMILTON[1]

AN extract from the preface will, perhaps, best outline the scope of this work. "The purpose of the writer is to utilize a large number of original letters and documents, written by Alexander Hamilton and various members of his family as well as his contemporaries, and which in some measure throw light upon his private life and career as a soldier, lawyer and statesman. Most of these have never been published, and were left to me by my father, the late Philip Hamilton, who was his youngest son. I have no more ambitious purpose than to produce a simple narrative, for there are several important works that fully and formally describe his public services. . . . . If I have gone into detail very minutely it is because of the belief that the familiar side of his life will be of interest to a great many people who have hitherto been furnished only with unauthentic generalities."

As will be inferred from the foregoing, much space is devoted to the letters themselves. The letters, however, are arranged according to their bearing on certain phases of Hamilton's character and career, rather than in chronological order. Thus we find chapters on *Personal characteristics; As a writer and orator; Elizabeth Hamilton; Family life; Friends and enemies; Building a home*, etc.

Eleven appendices and a full index further enhance the value of the work.

[1] *The intimate Life of Alexander Hamilton*, based chiefly upon original family letters and other documents, many of which have never been published. By Allan McLane Hamilton. 28 illus. Pp. xii, 483. $3.50 net. New York: Charles Scribner's Sons. 1910.

THE INDIAN PLACE-NAMES ON LONG ISLAND[2]

PERSONS living all or part of the year on Long Island will be specially interested in Mr. William Wallace Tooker's book on the *Indian Place-names on Long Island.* However, the book has a wider significance, for incorporated in it is much valuable material gathered from sources now destroyed, notably records of land-papers which were destroyed in the burning of the capitol at Albany. The origin and history of 486 place-names and also their location are given. In an appendix is printed a list of Algonkian names suitable for country homes, hotels, clubs, motor-boats, etc. The preservation of these Indian names is a commendable practice which adds picturesque interest to the places thus named and should be encouraged.

NOTES ON HAWAIIAN PETROGLYPHS[3]

FOR some years Mr. John F. G. Stokes has been collecting data on the Hawaiian petroglyphs, which the Bernice P. Bishop Museum has now published with the intention of later publishing any further data which may come to light.

The first record of petroglyphs on the islands was made by Mathison in 1822, when he saw a pictured stone on Oahu. Since that time several others have observed and recorded them in various parts of the islands.

During 1906 and 1909 Mr. Stokes, while journeying on the islands of Hawaii and Molokai, paid some attention to the petroglyphs and took a number of photographs of them. As many of the lines in the petroglyphs were shallow, it was found necessary to mark them over with chalk to bring out the outlines before photographing. He made it a rule to photograph them as they were, without completing incomplete figures. Mr. Stokes came to the conclusion that the usual tool was a beach pebble, instead of the stone adze, as others have thought. The adze could hardly keep its edge long in such work, and a pebble would do just as well.

Many of the glyphs are on the surface of ancient lava flows near the beach, though there are some on loose stones. Some are under water at high tide. Others are on the walls of caves. By far the greater part are straight line figures representing human beings with arms and legs in various positions, and with circles for heads, though some are headless. The size varies considerably, some being 10 in. long and others 40 in. One headless figure at Kahaluu the natives said was Kamalalawalu, a king of Maui who invaded Hawaii. According to the native story, the king of Hawaii by strategy

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[2] *The Indian Place-names on Long Island and Islands Adjacent.* By William Wallace Tooker, Algonkinist. Edited with an introduction by Alexander F. Chamberlain, Ph.D. Pp. xxviii, 314. $2.50. New York: G. P. Putnam's Sons. 1911.

[3] *Notes on Hawaiian Petroglyphs.*—I. By John F. G. Stokes. Extract Occasional Papers, Vol. IV, No. 4, Bernice P. Bishop Museum, Honolulu. 50 illus. from photographs and drawings. Pp. 39.

drew the invader away from the coast and then killed him in battle. His body was brought to Kahaluu, a picture made in the rock and the body sacrificed.

RECENT PUBLICATIONS OF THE ACADEMY OF PACIFIC COAST HISTORY

Numbers 1, 2, 3 and 4 of volume 2 of the Publications of the Academy of Pacific Coast History were brought out in July and August. They continue along some of the lines begun in volume 1, and are entitled: *The Portola Expedition of 1769-1770, Diary of Vicente Vila,* edited by Robert Selden Rose; *Papers of the San Francisco Committee of Vigilance of 1851,* edited by Porter Garnett; *Expedition to San Francisco Bay in 1770, Diary of Pedro Fages,* edited by Herbert Eugene Bolton; *The Portola Expedition of 1769-1770, Diary of Miguel Costanso,* edited by Frederick J. Teggart.

RECENT PUBLICATIONS OF THE UNIVERSITY OF CALIFORNIA

Some recent publications of the University of California in American Archæology and Ethnology are: *The Material Culture of the Klamath Lake and Modoc Indians of Northeastern California and Southern Oregon,* by S. A. Barrett; *The Chumash and Costanoan Languages; The Languages of the Coast of California North of San Francisco;* and *Phonetic Constituents of the Native Languages of California,* the last three all by A. L. Kroeber.

EDITORIAL NOTES

AN INSCRIPTION FOUND AT LA CAPOCOTTA, ITALY, CONCERNING A JEWISH SYNAGOGUE.—"An inscription has been found at La Capocotta singing the praises of a wealthy Jew, and revealing the fact that a synagogue had been built at Ostia for the use of the Semitic 'villeggianti' on the neighboring coast." *Atheneum*, London, August 26, 1911, p. 250.

HARLAN I. SMITH GOES TO CANADA.—Mr. Harlan I. Smith, who had been connected with the American Museum of Natural History since 1895, has been appointed archæologist of the Canadian Geological Survey. His headquarters will be at the Victoria Memorial Museum, Ottawa, Canada.

MOULDS FOR BRONZE IMPLEMENTS.—In December 1910 there were found 4 miles form Ballymoney, Co., Antrim, Ireland, some stone moulds. The removal of 9 ft. of bog at this point disclosed these relics of early times. The moulds were for the purpose of making bronze spearheads, daggers, etc. One was unique—a mould for bronze sickles. The opinion has been put forward that these are at least 3000 years old.

ANCIENT BATH AT PALMYRA.—On March 23, 1910, Mr. T. C. Fowle visited a bath discovered the week before at Palmyra—the ancient Tadmor—in the Syrian desert. It is away from the main ruins in the middle of the native town. Some natives had been digging in their courtyard when they accidentally found the bath. It is made of rough stone and is in a good state of preservation. It indicates the presence of a hot water stream, or perhaps lake, under the town.

THE PHILISTINES AND STEEL.—W. Belck, arguing from certain passages in *I Samuel*, *Joshua* and *Judges*, comes to the conclusion that the Philistines were the discoverers of the art of making steel. He thinks they developed the art of iron-working and then of steel manufacture in Crete, during some 8 or 10 centuries prior to their invasion of Canaan in the XIV or XIII century B.C. In their conquest they were aided greatly by their scythe-bearing chariots.

ARCHÆOLOGY BY MEANS OF POST CARDS.—There has been issued under the direction of men connected with the Royal Museums of Brussels a systematic series of 9 dozen postal cards dealing with the section of antiquities in these museums, thus placing within the reach of the people for home use the most important antiquities of these museums. Two dozen are of Egyptian antiquities; two of Greek and Roman marbles; two of Greek vases; one of terra cottas; one of bronzes; and one of Belgo-Roman antiquities.

AGE OF MUMMIES.—Doctor Elliott Smith considers the oldest mummy in the Cairo museum not older than 1580 B.C. Another found by Messrs. Lythgoe and Mace at the Lisht Pyramids he believes is of the XII dynasty, and still another found by Mr. Quibell at Sakkara 4 years ago is of the X and XI dynasty or about 2100 B.C., while a mummy from Medum found by Petrie 12 years ago is of the V dynasty about 2700 B.C.

PAPERS OF THE SCHOOL OF AMERICAN ARCHÆOLOGY.—We are in receipt of the following papers of the School of American Archæology: *The Excavation of the Cannonball Ruins in southwestern Colorado*, by Sylvanus G. Morley; *The Pajaritan Culture, The Excavations at Puye, New Mexico, in 1907, The Excavations at Tyuonyi, New Mexico, in 1908, The Excavations at El Rito de los Frijoles in 1909*, all by Edgar L. Hewett. These are reprints of articles which appeared in the *American Anthropologist, the American Journal of Archæology* and *Out West*, giving accounts of work connected with the School.

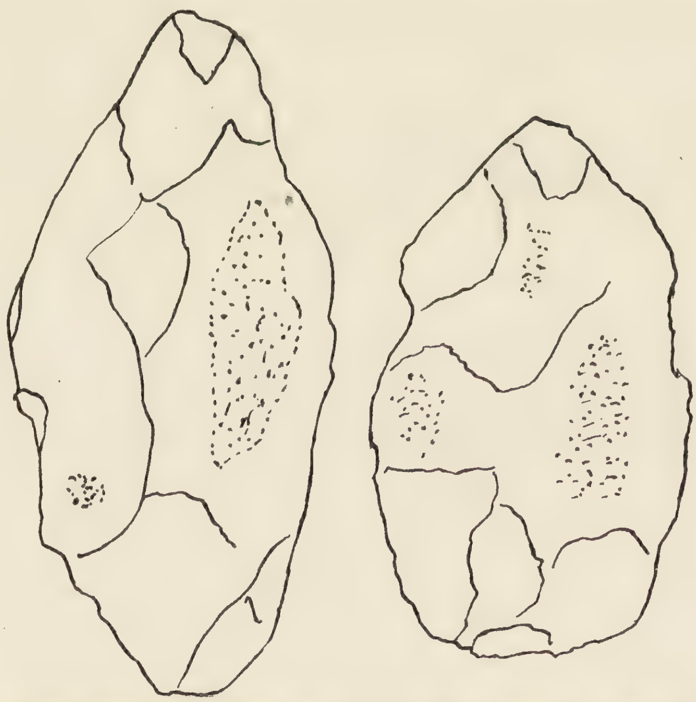
REMAINS OF A ROMAN MANUFACTORY IN WALES.—Mr. T. Arthur Acton has for the past 4 years carried on excavations near Holt, East Denbighshire. Numerous Roman relics were found, enough to indicate a very considerable Roman settlement at Holt. The main buildings, according to Professors Haverfield and Bosanquet, probably constituted a manufactory—a portion of tile and pottery works. The stamp of the potter, Julius Victor, has been found. It is thought that iron nails were also made there. Large pieces of window glass found lead to the supposition that it, too, was manufactured at Holt.

PROFESSOR BINGHAM IN PERU.—Professor Hiram Bingham with the Yale University Scientific expedition arrived at Lima, Peru on June 23 and later went into the interior. He expects to make a cross section from the river Purus to the Pacific along the 73° meridian via the Urubamba valley, Abancay and Mount Coropuna. They plan to reach the Pacific in December. Special attention will be given to any ruins that may be encountered. With Professor Bingham are Professor H. W. Foote, naturalist; Professor Isaiah Bowan, geologist; Doctor W. G. Erving, surgeon; Mr. Kai Hendriksen, topographer; Mr. H. L. Tucker, engineer; and Mr. P. B. Lanius, assistant.

EXCAVATIONS ON CRETE.—According to the *Illustrated London News*, Professor Frederic Halbherr considers the market place which the Italian Archæological Mission in Crete recently uncovered at Haghia Triada the oldest market place ever found on Greek soil. The Minoan palace and Royal Villa at Phaestus and Haghia Triada have been completely excavated. At Lebena on the southern coast of the island the Græco-Roman temple of Aesculapius with its surroundings was entirely unearthed. New researches have been carried on at Gortyna and at Prinia, on the slope of Mount Ida. At Prinia archaic Greek shrines with remarkable pieces of sculpture in primitive style were found.

PROPOSED IMPERIAL BUREAU OF ANTHROPOLOGY IN LONDON.—The Council of the Royal Anthropological Institute of Great Britain and Ireland sent to the recent Imperial Conference in London a Memorial urging the establishment of an Imperial Bureau of Anthropology. The proposal is that the Bureau should be established in London and that it should be managed by a committee composed of the Council of the Royal Anthropological Institute and representatives of the Governments of the British Dominions, of the Indian and Colonial Offices, and of those universities in Great Britain, in India and the Colonies and Dependencies of the Empire where anthropology is systematically studied.

ANOTHER IMPLEMENT FROM THE YELLOW DRIFT AT TRENTON.—Dr. C. C. Abbott reports the recent finding of the implements of which we give illustrations, in the "yellow drift" near his house in Trenton, N. J. They were brought to light in a fresh cut 3 ft. below the surface in undisturbed strata. The implements are of argillite and of palæolithic type and are partially covered with a thick accretion of iron, shown



ARGILLITE IMPLEMENTS RECENTLY FOUND IN TRENTON BY DR. ABBOTT

by the dotted areas in the illustrations. None of the flint and jasper implements found near the surface have such accretions, but pebbles of flint and jasper lower down in the deposit do have them. All this is in line with Dr. Abbott's earlier discoveries, and with those of Mr. Volk, whose report is reviewed on a previous page. Such cumulative testimony should dispel all doubts about glacial man in America.

ANCIENT MINES IN SPAIN.—The reopening of the Oural and Aram copper-cobalt mines in Spain gives us a glimpse into the methods of prehistoric mining. According to reports, the galleries and drafts do not open directly into the mountain side, but are entered by means of several vertical shafts a few meters in height. Numerous relics were found, both inside and out. Two complete skeletons were discovered as well as a number of incomplete ones. Implements of stone and bone and even a few coins were picked up. Someof the stone hammers were intended to be used without handles, and sometimes weighed as much as 20 pounds, indicating extraordinary muscular development on the part of the miners. Some of the men were tall. Many of the diggings worked are so narrow that only slim men could possibly have done the work. The relics of lighting appliances are interesting. Numerous pieces of wood with one end charred were found sticking in lumps of dry clay plastered on the walls of the galleries.

PETROGLYPH FROM EASTERN MASSACHUSETTS.—Some months ago Professor Harris Hawthorne Wilder of Smith College came into possession of a stone covered with inscriptions. It is a small oblong boulder of trap about 10 in. long. The surface has weathered to a rusty red color. It was found 60 years ago in West Wrentham, in the edge of Norfolk County by a Mr. Simeon Stedman, who carried it to his home in Cumberland, Rhode Island. There it remained for 30 years, when it was used to mend a back door step, in which capacity it was serving when rescued by Professor Wilder. One edge was constantly exposed to wear till it was nearly smooth, but nevertheless it still shows some traces of an inscription. The inscription runs around the entire stone, leaving the two ends only uninscribed. Professor Holmes of the United States National Museum has made a tracing of the inscription. The more usual human and animal figures are absent. In some respects it bears striking resemblance to the petroglyph on Bald Friar Rock in Maryland, and to certain parts of the Dighton inscription.

As to the purpose of the inscription, not much can be said. It is too small to have been a boundary stone, too hard to work to have been a simple message from one party to another; it has been suggested that it served some ceremonial purpose.

Professor Wilder feels that it is genuine—the people involved at present would be incapable of conscious fraud, and fraud would not be likely 60 years ago among New England farmers who were not particularly interested in such relics.

DEATH OF T. S. DENISON.—On April 7, 1911, occurred the death of Thomas S. Denison, whose pamphlets of *Nauatl or Mexican in Aryan Phonology*, *The Primitive Aryans of America* and *Morphology of the Mexican Verb* were reviewed in the March-April issue of RECORDS OF THE PAST, and whose paper on *Aryan Origin of the Aztecs* appeared in the July-August issue. Mr. Denison was born in Marshall County, West Virginia, in 1848. He was educated at Normal University, Lebanon, Ohio.

His was a varied career. After teaching school for a time, he tried his luck as a prospector and trudged through the Rocky Mountains in

search of gold. Later, in 1878, he entered the publishing business in Chicago, and continued in that business up to the time of his death.

He was author of several novels, some verse and 30 plays for amateurs. But his most noteworthy work was along philological lines. Some 10 years ago he began a systematic study of the Nauatl or ancient Mexican language. He finally became convinced that the Mexican and primitive Aryan tongues were cognate and that the Mexicans were of Aryan stock. Aside from the linguistic similarities, he noted certain religious and social customs in which the civilization of the Aztecs resembled that of ancient eastern countries such as human sacrifice, worship of fire, self-torture and penances, festivals, marriage customs, etc.

Mr. Denison's death is much to be regretted for he was doing faithful original work along lines which few are prepared to take up.

DOCTOR MACKENZIE'S WORK AT 'AIN SHEMS.—Doctor Mackenzie, owing to delay in procuring the permit and to the exceptionally severe winter, was unable to begin work at 'Ain Shems until April 6 of this year. This spot is commonly supposed to be the site of the Beth-Shemesh of the Bible. The Tell of 'Ain Shems consists of two hills with a depression between. In the depression is a Wely, or old Mohammedan shrine, dedicated to a holy man, Sheikh Abu Meizar. As this shrine has been abandoned by the Mohammedans, Doctor Mackenzie was allowed to make the Wely into his general office and museum. Yusuf Kanaan, who has formerly acted as foreman for the Palestine Exploration Fund in its excavations, was again employed.

During the next few weeks considerable was accomplished. In speaking before the annual meeting of the Fund, Sir Charles Watson, who visited the site during May, thus summed up the work done:

> The old wall of the town has been traced all round the hill, and parts have been laid bare to the foundation and show that there have been several periods of construction, the earliest dating very far back. A very interesting discovery has been the south gate of the town, well defended with towers and guard chambers. Possibly this was the only gate, but it is too soon to say with certainty as the whole of the north wall has not yet been excavated. There are signs at the gate, and in other places, that at some time there was an extensive conflagration which seems to have destroyed the town. Even the ground shows signs of the fire. At the southeast corner of the wall are some ruins of Byzantine date, and as these occupy the highest part of the hill it is probable there are important older constructions below them, but it will take some time to get down to these. Outside the wall of the city on the east side of the Tell, Doctor Mackenzie has come across a very interesting cave used for burial and containing objects of an early date. The roof has partially fallen in, perhaps from the result of an earthquake, and some blasting will be required before it can be fully investigated.
>
> Great quantities of pottery of all ages have been found, but these are not yet classified. Some pieces are apparently from Cyprus or the Greek Islands. Flint implements, bronze and iron objects have been found, while other articles belong to an Egyptian occupation of the city—possibly of the XVIII dynasty. But it is too early yet to speculate as to the history of the city.

Some troglodyte dwellings were also found, but have not yet been thoroughly investigated. Doctor Mackenzie thinks some of the accumulations of deposit point to troglodyte habitation going back possibly to the border of the Neolithic age and the III millennium B. C.

DISCOVERY OF AN ANCIENT CANOE AT AUSTRUWEEL, BELGIUM.—On October 10, 1910, Engineer in Chief Zanen informed the authorities of the Royal Museum at Brussels of the discovery of an ancient canoe in the course of the work of extending the harbor of Antwerp. The Museum immediately sent to examine the locality. The boat was found at a depth of about 18 ft. in sand under modern soil, resting upon the bed of an ancient river whose width reached 197 ft.

It was out of the question to transport it to the Museum in one piece because of its fragility and weight, hence it was decided to saw it into a number of pieces. In that way all the sections were transported in good condition to the storehouse of the Museum. These portions were subsequently cleared of the mud which enveloped them, and carefully studied. Thus a plan of the whole and a series of sections could be made before the wood dried and warped.

The width, calculated from the curve of the incomplete portions found, is between 3 ft. 3 in. at the bow and 5 ft. 6 in. at the stern. The thickness of the walls varies from 4 in. in the bow to 6 in. in the stern. The bow, as well as the stern, is cut perpendicularly to the axis of the main portion of the boat; the two ends of the canoe were fastened to the middle by pieces of wood fixed to the body of the craft by wooden spikes. Up to the present no one has found a single piece of these fastenings of the stern and the bow, which are indicated by a series of spikes which are still stuck in the two extremities of the canoe. Moreover, the stern was bound into a groove-shaped cut in the lower part of the bark for the purpose of holding more solidly that part of the boat, which was much larger than the bow. The bow was reinforced by a piece of wood fastened to the middle by thick spikes.

Twelve rows of wooden spikes, separated from each other 3 or 3½ in. and set perpendicularly to the long axis of the canoe, cross the sides of the boat. Their use has not been determined.

In the stern, 4 kinds of iron hooks were found embedded in the sides. These hooks, as well as indications that metal instruments were used in making the canoe, place the date within the iron age. As there were no chance objects, such as pottery, in the vicinity, it is impossible to place the date more definitely than by the geologic beds. The boat rested on the bottom of the stream—a stratum of modified corniferous pliocene sand. It was surrounded by peaty alluvium. This stratum, according to M. A. Rutot, was in process of deposition during the age of polished stone implements and until the end of the Roman period in this region, about 300 A. D. It seems probable that the boat when found was not in its original position, but had, as time went on, sunk through the soft mud till it reached the more solid sand stratum. Hence a bark of pre-Roman times but of the iron age could very well be found in such a situation. Most of the ancient boats found in Belgium have been found at the base of the contemporary deposits.

[Translated and condensed from the French of M. E. Rahir in the *Bulletin des Musées Royaux des Arts Décoratifs et Industriels* by H. M. W.]

FIG. 8. MUMMY OF A GIRL WITH HER TOYS

RECORDS OF THE PAST

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ROMAN PORTRAITS

ALTHOUGH in many authors we read accounts of the paintings of Greek and Roman artists, of the great sums anciently given for pictures and of their being taken as most precious plunder by conquerors, yet not a single portable picture has survived in Europe from classical times. The celebrated Muse of Cortona is of Renaissance age, as shown by the carving represented in it. It is only in Egypt that any classical paintings have been preserved of the more delicate work; the Pompeiian frescoes are but house decorations though deeply interesting as showing subjects and composition. In Egypt it is only two or three sites that have yielded these paintings. All of the artistic wealth of Alexandria has perished by damp; and even in Upper Egypt it is only in desert countries, well above the Nile, that any paintings or papyri can survive. Moreover, there were in Egypt very few communities so largely Greek as to have a custom of protrait painting. Beyond a couple of portraits from Thebes, all that are known have been found in two sites in the Fayum, a district which continued a Greek colony of veterans. The portraits from Rubaiyat were obtained by Herr Graf and taken to Vienna. The other site, Hawara, is the more important as that cemetery had as a nucleus the pyramid of Amenemhat III, who was worshiped as the founder of the province, and the richer inhabitants of the capital, Arsinoe, were taken there for burial.

In 1888 when working at Hawara I found about 60 portraits, of which some 40 were in fair preservation. Since then a layer of top earth has

FIG. I. PORTRAIT OF A MAN ON CANVAS

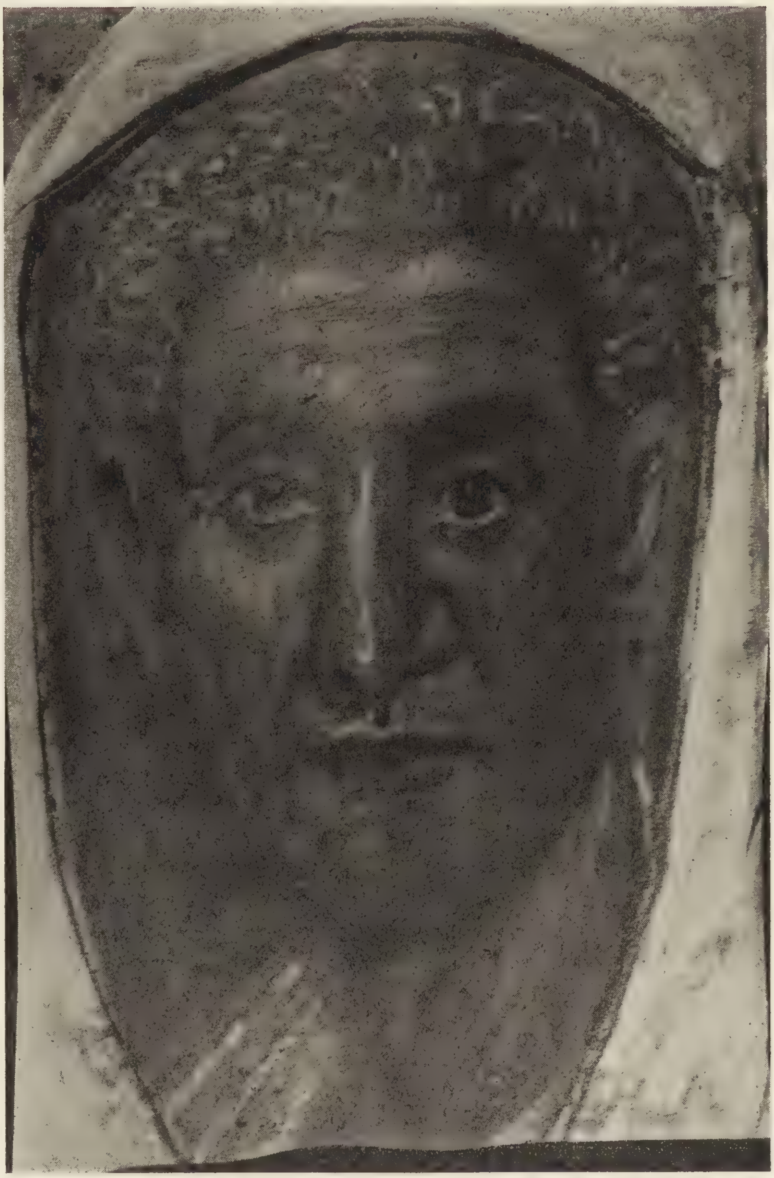

FIG. 2. PANEL PORTRAIT OF A LADY, DEMETRIS

been removed from the cemetery, and I was able this year to find about as many again. The 80 clear portraits thus discovered in this cemetery are probably the greater part of all the classical portraiture that we shall ever see. It has been decided, therefore, by the COMMITTEE OF THE EGYPTIAN RESEARCH ACCOUNT not only to publish fully all the clear examples found this year in the work of the School but to republish with these the best examples of the previous discoveries. This will be done in 28 large colored plates by the finest process, and 32 smaller photographs; these will be issued partly in the usual $5 volume of the School (4 colored and photographs with all the description), and in a special portfolio of 24 colored plates issued at $10. All those who are interested in ancient art will thus have the best examples of painting fully before them.

The general method of painting these portraits was as follows: A panel of very thin wood, straight grained and free of knots, was cut about 13 or 14 in. wide and 15 in. high. The head and neck of the subject was outlined on this in thin black wash. The grey background was brushed in, with melted wax as a vehicle, working round the outline but not over it. The drapery was likewise brushed in with a wide brush and free flow of color. The flesh was laid in with wax color in a creamy state, flowing from a solid tool such as a brush set stiff with wax, so as not to part into hairs. Short strokes just touching, about ½ to 1 in. long and ¼ in. apart covered most of the surface, but curvature was indicated by longer strokes following the form. The hair was put in by a small brush, laying free flowing lines about $\frac{1}{16}$ to ⅛ in. wide. The color was the same through the whole depth, in some examples about $\frac{1}{16}$ in. thick, and was not laid on in many successive coats modifying each other; only in a few cases was their hatching of different tints used.

Such a portrait was framed and hung in the house. In 1888 one example was found in its frame, with the cord attached to it, and a groove for the glass over it. Usually when a person died the portrait was taken down and sent with the body to the embalmer. After opening the body and saturating it with oils it was wrapped up in a large mass of linen cloth and elaborately bandaged, with the portrait inserted over the head. To accommodate the picture to this, about a third of its breadth was split off, and the corners rounded and in this state we find the portraits on the mummies.

The portraits shown here begin with the earlier stage of painting on canvas. (Fig. 1.) This powerful portrait of a man was found along with another canvas portrait, which is not in such clear condition, but is of great interest as being the oldest portrait of a woman teacher that we know; it is inscribed "Hermionē, grammatikē," showing that she expounded the ancient authors, and was what we should call a "Reader in Classics." She now stands amid the books of Girton College, Cambridge, surrounded again with learning and girl students.

The panel painting, figure 2, is a striking likeness of a powerful old lady Demetris, who lived to 89, as is inscribed in gilt letters on her cover. This is one or the rare examples which have a single outer coating of canvas painted red, with figures of the Egyptian gods in gold leaf. It is now in the Brooklyn Museum. Figure 3, now at New York, is a head of a young

FIG. 3. PORTRAIT OF A STUDENT WINNER IN A COMPETITION

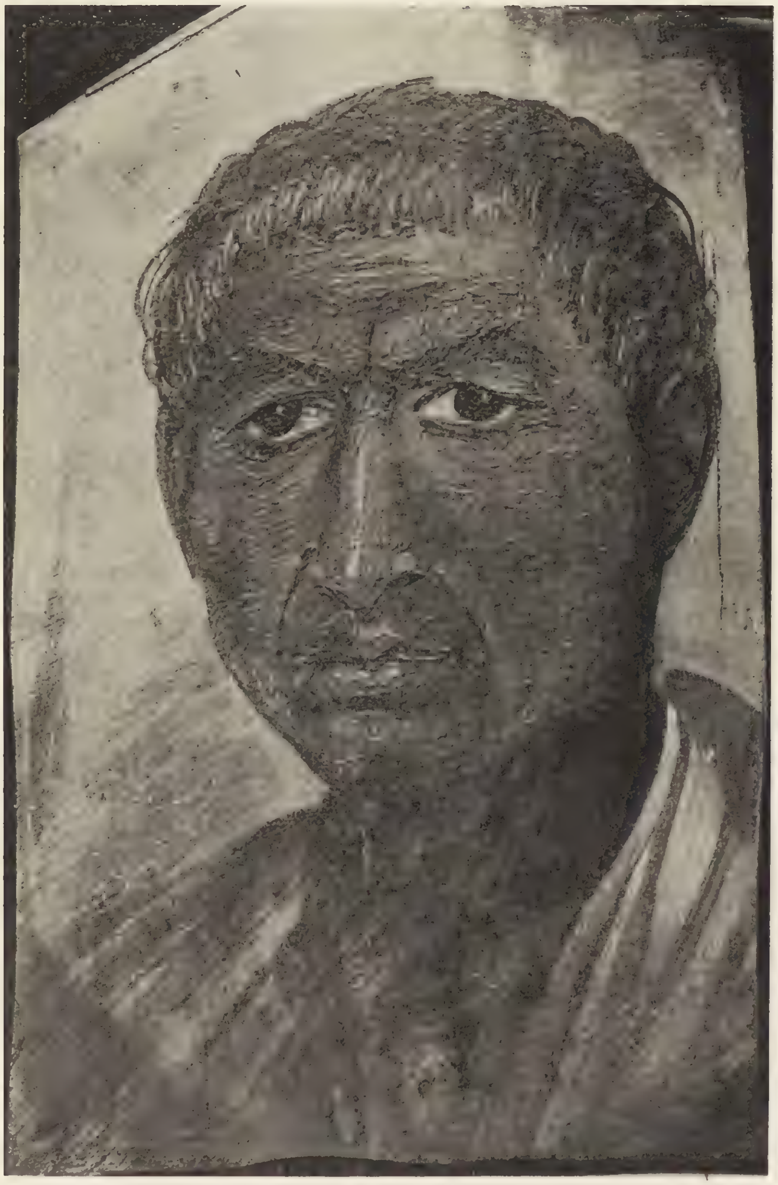

FIG. 4. PORTRAIT, PROBABLY OF A SPANIARD

FIG. 5. PORTRAIT SHOWING MARK SIMILAR TO INDIAN CASTE MARK

FIG. 6. MUMMY SHOWING ELABORATE BANDAGING AND FACE WITH CASTE MARK (?)

student, with a gilt wreath, probably as the winner of some competition, scholastic or gymnastic. The type suggests a mulatto, a mixture of Ethiopian and Greek.

The strongest piece of character painting, figure 4, is probably of a Spaniard, as the mode of the hair and proportions of the head are like those of Trajan. But by the expression there seems a Moorish mixture, resembling the modern Shawyeh. A curious interest attaches to figure 5, as it has evidently a mark of 3 white lines on the forehead, similar to an Indian caste mark. We have lately begun to recognize how much Indian influence had come into Egypt, seen in the Hermatic books, the life of Apolonois, and the terra cotta figures. Here it seems that a resident in Egypt had adopted

FIG. 7. GILDED STUCCO CASE OVER THE HEAD AND CHEST OF A MUMMY

FIG. 9. MUMMY OF A GIRL AFTER THE OUTSIDE COVERING WAS REMOVED

the use of the mark of a worshiper on the forehead; and, if such were known in the East Mediterranean, it gives point to the mark of the beast being said in the Apocalypse to be on the forehead of his followers. Figure 6 shows the whole of this mummy, as a good example of the elaborate bandaging then in use. The feet are covered with a case painted and gilded, and gilt knobs are placed in the center of each of the rhombic spaces of the binding.

Before these portraits were used there was an Egyptian custom of covering the head and chest with a gilded stucco case, as in figure 7. The figure

FIG. 10. BUST WITH ANCIENT REPAIR IN PLASTER

FIG. 11. WALL SCULPTURE SHOWING AMENEMHAT III KNEELING IN A BOAT OPENING A SHRINE

usually holds a red wreath in the left hand; or sometimes a wreath in the right and a candle in the left—the only evidence of candles having been invented then. These cases had been elaborated from the old Egyptian cartonnage covering of mummies.

A beautiful little mummy was that of a girl, figure 8, with her toys laid upon her body. At the head is a tablet, with figures of a man on one side and a woman on the other, probably the parents. Six glass unguent bottles lay along the body, one finely cut with fluting and wreaths. Most remarkable are two mirrors of tinned copper, one convex, the other concave, lying in turned boxes of wood. These are the earliest examples of diminishing and magnifying mirrors that are known. A pottery lion and a blue glazed figure of Horus complete the set. After removing the covering cloth the bandaging appears as in figure 9.

Noseless busts are the commonest sight of ancient sculpture, but perhaps never before has an ancient repair in plaster been found. The nose and upper lip had been broken away, and then restored as in figure 10. The eyes in this have been inserted in black and white glass, but the centers have fallen away.

Beside the work on the Roman cemetery at Hawara, a large amount of excavating was done on the site of the celebrated labyrinth. Previous excavations had scarcely uncovered anything beyond some broken columns

and architraves. By clearing away 20 to 25 ft. depth of earth, where the ruins of the pyramid had covered the head of the temple we found the upper parts of half a dozen statues of the gods of the XII dynasty, the earliest such figures known. Also two immense shrines of red granite appeared, each containing two life-sized figures of the king Amenemhat III, and weighing about 8 tons. Many fragments of the wall sculptures lay about smashed up, one of the more interesting of which, figure 11, shows the king kneeling in a boat and opening the shrine containing a sacred tree, the only such scene known.

Beside all this work at Hawara in my own hands, the RESEARCH ACCOUNT was also engaged at Gerzeh, near Meydum, where Mr. Wainwright found a prehistoric cemetery, with the earliest iron known, of about 6000–7000 B. C., apparently a chance lot of native iron worked up. Two new pyramids of very complex construction have also been found at Mazghuneh, south of Memphis, by Mr. Machay. The regular work at Memphis has turned up much sculpture from the great temple of Ptah, which had been re-used in the foundation of a church. A fine example of this work has been sent to the Theological Seminary, Chicago. Thus there has been a variety of good results beside the great find of portraits. Next year the main interest will be the work at Heliopolis (On) where remains of the earliest dynasties are known already, and where—if anywhere—we might find the traces of the pre-dynastic kings. Frederick Bennett Wright, editor of RECORDS OF THE PAST at Washington, D. C., and Dr. Winslow at Boston have kindly undertaken to represent this Society in America, and further information and publications can be obtained through them.

W. M. FLINDERS PETRIE.

University College, London.

REMOVAL OF OLD ROMAN BOAT TO THE MUSEUM.—On August 24 the old Roman boat, recently found in the Thames mud on the site of the new County Hall near Westminster Bridge, was removed to the new Museum at Kensington Palace. "The boat, which is of solid oak and of great weight, had been placed in a deal framework built on the lines of the original model, and it then had to be transferred to a couple of powerful lorries and by means of chains dragged up a considerable incline from the lower level of the foundations." When the beams were hoisted from the mud, a quantity of decayed bones was discovered. Among them were the rib of a man and other human remains and also a dog's jaw. A special annex to the Museum 90 ft. by 30 ft. had been built to shelter the boat.

TWO BRONZE BULLS FROM LEBANON

SOME EXAMPLES OF THE HUNCHBACKED OX IN SYRIAN ART[1]

IN a note published in 1906 upon a bas-relief of 'Ain el-Gadâ (Cœle-Syria) I mentioned the hunchbacked ox which figures upon many Syrian monuments. It is generally admitted that the zebu originated in India; but there is no agreement, I believe, upon the question whether that quadruped, introduced into Syria long before our era, still existed there in the Roman epoch, as certain colonial coins seem to prove. Some of the monuments described hereafter, which I have been able to study since 1906, seem to me to settle the question definitely in the affirmative.

Figures 1, 2 and 3 reproduce a little bronze bull with characteristic hump, which I had an opportunity of studying at leisure at Beirut. It is about $2\frac{1}{2}$ in. long. According to the shopkeeper who brought it to Beirut, it was found in 1906 or 1907 at Giné, in Lebanon, associated with some Roman coins and with another little bronze representing a nude Astarte, lying on her back. All had been discovered in a tomb. It is known that Giné, in the Roman epoch, was a center of the Lebanon cult of Adonis-Tammouz and Astarte.[2] I should be disposed to believe that our bronze is an idol, perhaps a personification (?) of Tammouz. From a plastic point of view, an important detail will be noted, for it is intentional and repeated upon many bulls of which we shall speak later; it is the marked prominence of the rump. As upon other specimens, it seems to constitute a balance for the hump at the opposite extreme of the animal's trunk.

Figures 4 and 5 show us a bronze also from Lebanon, but much more ancient. It is nearly $3\frac{1}{2}$ in. long. Here we surely have a sacred animal, the support of a divinity in the Babylonian or Assyrian, or possibly the Hittite style; the two deep holes in the back are sufficient proof of that. The humped bull of this form is well known for Mesopotamia by some cylinders of various epochs. Nevertheless, our bronze proceeded from 'Aley in Lebanon, and is today preserved in the collection of the University of St. Joseph, thanks to the kindness of an old scholar. In making this gift, the latter seriously considered the object an idol, the image of the famous calf which the votaries of Hâkem are reported to adore secretly at the present day in their *halwés*:[3] the *halwé* was even pointed out from which it was taken. Afterwards all these references were found to be entirely wrong, except that of the Lebanon origin of the bronze.

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[1] Translated and slightly abridged by Helen M. Wright from *Melanges de la Faculté Orientale*, iv, 1910, pp. 181–188. University of St. Joseph, Beirut, Syria.

[2] Cf. Renan, *Mission de Phénicie*, pl. xxxvi and the description. A good photograph of the very interesting "tomb of Adonis" has been published by the late von Landau in No. IV of his *Beitraege zur Altertumskunde des Orients*, pl. III; it has been reproduced and commented upon, following the system of Winckler, by the two Jeremias in *Das Alte Testament*, p. 90 and in *OLZ*, 1907, col. 60.

[3] Upon this strange cult, which seems to have originated in Egypt, *cf.* Casanova, *RA*, 1891, I, p. 298: figurine of a wild sheep with the name of Hâkem.

What is the age of the object? Considering its shape, its workmanship and above all the fine green patina, I do not believe that one is much mistaken in placing it, if not during the II millennium B. C., at least in the neighborhood of 1000 B. C. In any case, it is very regrettable that the god mounted on the bull was so easily detached; this was, nevertheless, inevitable, for the two mortices in which the terminal loops of the divinity's feet were placed were absolutely smooth, the statuette having been set without any mortar—consequently it was movable. Owing to this fact, I ask myself whether the question of the animal supports of the Semitic gods to which we attach so much importance today was not secondary with the ancients; in other words, if the same god could not, according to circumstances or with a symbolism of which we have no key, pass from the back of a lion to that of a bull or of another animal chosen to be his companion no less than his support.

A third bronze bull (Figs. 6 and 7) discovered in 1908 at Ksâra, not far from Zahlé on the border between Lebanon and Cœle-Syria, seems to me to furnish the link connecting the first two, both chronologically and artistically. It is about 4 in. long. The hump here appears very rudimentary; but the metal has suffered slightly in that region, perhaps as long ago as when the piece was cast; in any case, the protuberance of the hindquarters, equally defaced and for the same reason, reveals sufficiently the intention of symmetry described above. There is no reason to dwell upon the other details, such as closely resemble the preceding.

The date of this bronze can not be fixed with accuracy. The patina which covers it, thick but of a clear green,[4] is not a sign of very great antiquity. On the other hand, however, the primitive fashion in which the feet have been treated, seems to me to preclude an origin in the Roman epoch.[5] I believe, then, that we are dealing with a monument prior to our own era, but perhaps not much earlier.

The very small—only $1\frac{3}{4}$ in. long—humped bull (Figs. 8 and 9) which ends the series of bronzes, was recovered 4 or 5 years ago not far from Bætocécé (Hosn Sleimân). It is related to the preceding ones by more than one trait. The head in particular is almost identical with that of the third; but here the eyes, instead of being globular and in relief, are represented by two hollowed-out disks, strangely resembling large glasses. Another detail is interesting also for the technique of these objects; the hump and the rump are extras, soldered on by the workman after the final touches. One will note that the dorsal profile thus formed does not lack a certain elegance. It is that profile which some coin representations of the zebu and those which adorn certain Syrian weights simulate—while the type with the hump very near the base of the neck figured by the bronze from 'Aley, is found in other monuments of Syrian art.

[4] The blackish marks which are seen on this patina in the two pictures are due to a closely adhering deposit of earth, which I thought useless to remove before having the object photographed.

[5] Ksâra, at present a rich vineyard, seems to have been an old necropolis, the least ancient vestiges of which come down to the Christian epoch. I know, howe ver of nothing surely anterior to our own era among the objects dug up there except our bronze.

FIG. 11. BAS-RELIEF OVER A FUNERAL VAULT. REPRESENTS A HUMPED BULL AND A LION

FIGS. 6 AND 7. BRONZE BULL FROM KSÂRA

FIGS. 8 AND 9. BRONZE BULL FROM BÆTOCÉCÉ

Another monument, figure 11, has been published previously by M. von Mülinen in his work upon Carmel. I reproduce it from a photograph which I took in October, 1908.[6] The relief of the sculpture is very slight,

[6] By a strange inadvertence of the printer, our plate gives a reversed image of the sculpture.

two inches at the most; thus it had been easily defaced. However, we can distinguish clearly two animals facing each other; at the right a lion, at the left a humped bull and between the two, a vase.[7] The funeral vault the entrance of which this bas-relief ornamented, is of the Roman epoch, of the III or even the IV century.

There remains a second stone monument, which I described in the *Mélanges* (I, p. 225) but had not seen at that time nor did I have a picture; it is a lintel in basalt, discovered by the P. Lammens. I recently studied it during a journey into the Emésène and the district of 'Akkâr. Qizz al-Ahir, where the lintel was found, is on the carriage road from Tripoli to Homs; this village flourished in the Roman epoch, like all the rest of the Emésène, where all the modern places were built on ancient ruins. The lintel serves today as a support for an embankment (Figs. 13, 14). At the right of the altar we see a sheep with a long tail ending in a slight roll exactly as among the modern allied species in Syria; at the left, is a sculptured bull, whose hump is clearly defined.

The two animals figure here evidently as simple victims of sacrifice, and not as divinities or even as divine attributes. But the sheep is, unquestionably, of a local species; hence the ox must represent a domestic animal, at least domestic in that part of Syria. This conclusion seems safe to me; there is nothing to warrant supposing that the modest artist of Qizz al-Ahir was able to attempt representing anything other than a quadruped well known in the region.

What do I conclude, then, from a material fact so well established by the evidence of the monetary systems of Syria-Palestine where the zebu appears? It is certain that the zebu does not *always* figure upon these coins. Arados, for example, possesses a series in which the ordinary ox takes the place of the hunchbacked ox. Likewise, certain stones of the type of the *Jupiter héliopolitan*, reproduce the type of the humped ox, although upon several other monuments where the same divinity is figured, the ox appears without the hump. Is it necessary to attribute this diversity to the coëxistence of two bovine species at the Roman epoch? I, for my part, believe so; but will leave it to others to discuss—that is a problem in natural history rather than in archæology.[8]

I merely mention in a supplemental way two engraved stones one of which does not seem to me to be from Syria; the other is of an entirely conventional type.

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[7] The Palestine Exploration Fund, *Memoirs*, I, p. 419, reproduces a similar tablet found in the same ruin; but the two animals are both lions; similarly, a tablet from the synagogue of *Hirbet Umm el-'Amed*, *ibid.*, p. 404 with this difference that each lion rests a forepaw upon an indistinct object, rather poorly drawn, which I believe to be a bucranium. An analogous sculpture, uncovered at *Qal 'at ibn Ma'n* (*ibid*, p. 410) is probably an imitation from the Arabian period. Upon the association of the lion and the bucranium, permit me to refer to some notes which I published in the *Revue Archeol.*, 1905, I, p. 48.

[8] More than once I have asked myself whether what appears as a hump in certain Syrian monuments might not rather be an effect of the position given to the bull by an artist not very skillful. A doubt was first raised in my mind *à propos* of the bull of 'Ain el-Gadâ; and then, in observing the procession of cattle in Cœle-Syria, which have no humps, it has seemed to me that that appendix was clearly upon vigorous, adult subjects. M. Brandenburg, *Phrygien* (*Der alte Orient* IX, 2) p. 16, thinks with other scholars that the humped bovine species of antiquity still exists in Anatolia, but that the hump appears only on the bulls.

I have left aside entirely in this study the humped ox of the coins of Palmyra, which I know only through the works of Saulcy and of Mordtmann.

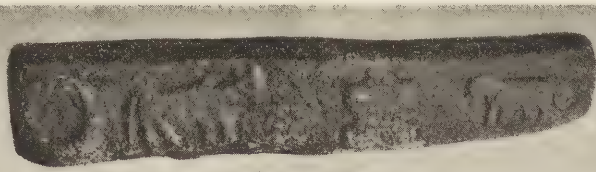
The first is a seal from the Persian period, in the shape of a hemisphere, flattened at the top, with a hole for suspension. The flat side bears a figure of a crouching ox, with a very exaggerated hump. We recognize at once a specimen of representation foreign to Syrian art. The origin of this seal is unknown to me, since it was part of the little collection of the University of St. Joseph; but it is hardly probable that it was carved in Syria.

The second engraved stone was showed to me at Beirut and I am equally ignorant of its origin; here also the hump is very prominent, but the type is that of the weights of Antioch.

The frequence of the bull on the monuments of oriental art, chiefly religious, is a remarkable fact, which has more than once engaged the attention of students of mythology and archæology. The best work which I have read on the subject is that of Pottier: in the *Bulletin de correspondance héllenique*, 1907, p. 120–126, 238 *et seq.*, and 257, the learned Curator of the Louvre has reviewed admirably the special influence of the Orient upon the Occident in the representation of the bull.

P. S. RONZEVALLE.

Beirut, Syria.



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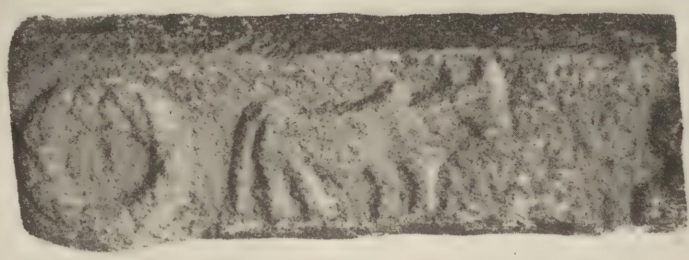


14

LINTEL AT QIZZ AL-AHIR SHOWING A SHEEP AND A BULL

SOMATOLOGY AND MAN'S ANTIQUITY

AMONG the proofs of man's greater antiquity, his anatomical remains properly dated and determined, are the most likely to be uncontroverted. The greatest interest attaches therefore to the location and physical nature of human remains of unquestioned antiquity. For this reason and in view of continued important discoveries, an occasional revision of the evidence and of theories based thereon is essential.

Ever since the discovery of fossil human bones at Forbes Quarry, Gibraltar; at Neandertal, Germany; and Spy, Belgium, interest in the somatological characters of our ancestral races has been keen. Discoveries of the past few years have added much to our knowledge of this subject. Because of the stratigraphic position in which it was found and of its osteological characters, the human lower jaw discovered by Dr. Otto Schoetensack on October 21, 1907, in a sandpit near the village of Mauer, 10 kilometers southeast of Heidelberg, ranks as the most important single specimen. Mauer lies in the valley of the Elsenz, a tributary of the Necker. The human lower jaw was found in situ in the so-called Mauer sands, at a depth of 24.10 meters and 0.87 meter from the bottom of the deposit. The first 10.92 meters at the top of the section are composed of loess, which is classed as upper Quaternary, while the Mauer sands forming the rest of the section are lower Quaternary. The loess itself represents two distinct periods, an older and a younger.

The absence of chin and the simian character of the ascending ramus immediately attract one's attention. The ramus is characterized by unusual breadth, 60 millimeters as opposed to an average of 37 for recent examples. The angle formed by lines tangent to the basis and the posterior border of the ramus is 107°—smaller than the average. The processus coronoideus is exceedingly blunt, and the incisura mandibulæ correspondingly shallow. The condyloid process is noteworthy on account of the extent of articular surface, due to an increased antero-posterior diameter (13 and 16 millimeters) since the transverse diameter is relatively short. The neck constriction is very slight, approaching in this respect the anthropoid forms. The teeth, however, have a distinctly human stamp, not only in their general appearance, but also in point of size—larger than the average, but smaller than in exceptional cases to be found among the Australians, for instance. One is impressed, in fact, by the relative smallness of the teeth as compared with the massive jaw in the case of *Homo heidelbergensis*. The crowns of the teeth are worn enough to show the dentine, proof that the individual had reached the adult stage. All the molars, except the third left, have 5 cusps. The tendency in recent man is toward a 4-cusp type for the third molar, if indeed there be a third molar. The breaking away of the crowns of 4 teeth on the left side tended to facilitate the study of the pulp cavities and the walls. This study reveals the fact that the dentition of *Homo heidelbergensis* represents a youthful stage in the dentition of the mod-

LOWER JAW OF HOMO HEIDELBERGENSIS. ABOUT $\frac{3}{4}$

LOWER JAW OF HOMO HEIDELBERGENSIS. AFTER SCHOETENSACK, DER UNTERKIEFER DES HOMO HEIDELBERGENSIS, LEIPZIG, 1908

Courtesy Smithsonian Institution

ern European. That is to say, in the ontogeny of the latter, a stage representing adult dental characters when the race was young is now reached at the age of from 9 to 14 years. This is not an anthropoid character, but a primitive human character. As pointed out by Professor Keith, the rotatory or side-to-side movement of the teeth, which distinguishes man from anthropoids, is already evolved in the Mauer specimen.

The lower jaw is an essential part of the mechanism of speech. In that of Heidelberg the form is not well adapted for the purpose in question and could have responded only to a primitive stage in the evolution of language.

It is unfortunate that the remains found near Heidelberg and at Trinil, Java, are so fragmentary. Both belong to nearly the same geological horizon. The femur of *Pithecanthropus* is distinctly human in form, suggesting the erect posture. The cranial cap on the contrary, is of an intermediate type; the brain in point of size is also intermediate between that of the average human and the anthropoid. Luckily the teeth offer a means of direct comparison between the Trinil and Mauer types. These are the last upper molar of *Pithecanthropus* and the last lower molar of *Homo heidelbergensis*. The two correspond in point of size. According to Keith, "the system of mastication was certainly the same in both and the palate of one was probably not very different from that of the other. The Heidelberg jaw however seems too massive and large to be fitted to the calvarium of *Pithecanthropus*."

The position of the Mauer lower jaw near the bottom of the old diluvium, and its association with the remains of *Elephas antiquus* and *Rhinoceros etruscus*, suggest for it a place at least as far back as the lower Quaternary. But the industry of the lower Quaternary is eolithic, the evolution of the Chellean type not taking place until the middle Quaternary. One would expect to find Mafflean industry in the horizon of *Homo heidelbergensis* and this, according to the latest report, is what Professor Schoetensack has succeeded in doing.

Because of its good state of preservation and its primitive characters, the skull found in 1848 at Forbes Quarry, Gibraltar, might well have been a direct descendant of the Heidelberg man. According to Professor Sollas it was a female of the Neandertal race. On the contrary, Keith thinks that its sex cannot be definitely determined and that its peculiar features, especially the low cranial capacity, are better explained by supposing it to belong to an earlier and more primitive human type than the Neandertal race.

The discovery one year ago by Mr. W. L. H. Duckworth, of a Mousterian industry in a cave near the one in which the Gibraltar skull was found may be considered as possibly throwing some light on the age of that relic. The human femur recently presented to the Royal College of Surgeons by Colonel Verner comes also from a cave in the neighborhood of Gibraltar. The associated faunal ramains prove it to have belonged to an ancient race.

The human teeth discovered last year by E. T. Nicolle and J. Sinel in a cave on the cliffs of St. Brelade's Bay, south coast of Jersey, belong to one of the most primitive examples of the Neandertal type yet known. Ac-

cording to Keith the teeth are fossilized and morphologically are intermediate between the teeth of the Heidelberg man and those of the Gibraltar specimen. That the teeth of early Pleistocene man were already highly specialized both as to roots and crowns is proved by the Heidelberg jaw. This Keith explains by the supposition that the human method of mastication had been evolved from the anthropoid long before the end of the Pliocene period.

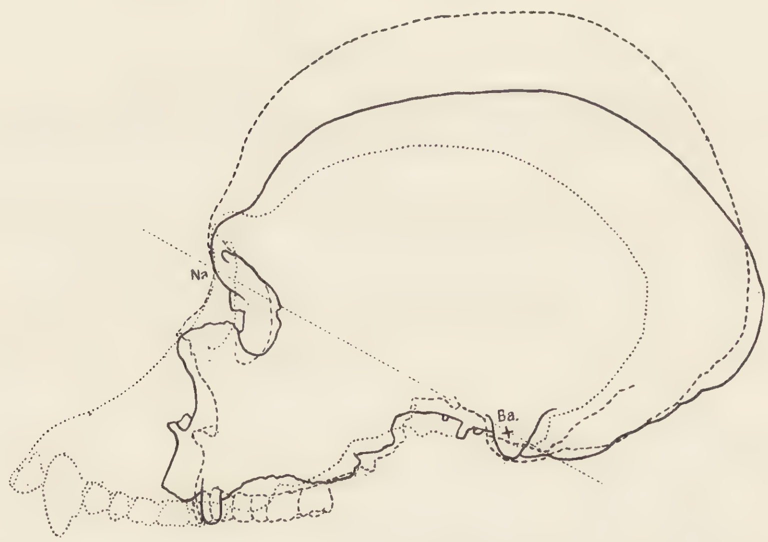
The Heidelberg type, although somewhat sharply attenuated to be sure, persisted in Europe for a long time, most of the remains having been found in the Mousterian horizons. To this attenuated type is generally given the name *Homo primigenius*. In addition to the Forbes Quarry skull, this group includes the well-known remains from Neandertal, Spy, and Krapina. Some of the most recent finds are not only well dated but also include remains in an excellent state of preservation. In this class belongs the skeleton of a youth found by O. Hauser in the lower cave at the classic station of Le Moustier (Dordogne). The associated industrial remains are of the Mousterian type.

One of the best specimens of *Homo primigenius* was found in 1908 near the village of La Chapelle-aux-Saints, 22 kilometers south of Brive (Corrèze) by the Abbés J. and A. Bouyssonie and L. Bardon. The discovery was made just inside the entrance to a cavern which also yielded stone implements and remains of the bison, reindeer, fox, horse, and *Rhinoceros tichorhinus*.

The human bones include the cranium and lower jaw (broken, but the pieces nearly all present and easily replaced in exact position), a few vertebræ and long-bones, several ribs, phalanges and metacarpals, clavicle, astragalus, calcaneum, parts of the scaphoid, ilium, and sacrum. The ensemble denotes an individual of the male sex, whose height was about 1.60 meters. The condition of the sutures and of the jaws prove the skull to be that of an old man. The cranium is dolichocephalic, with an index of 75. It is said to be flatter in the frontal and occipital regions than those of Neandertal and Spy.

Beyond the loss of teeth, due evidently to old age, the skull is so nearly intact as to make possible the application of the usual craniometric procedure, thus leading to a more exact comparative study than has been possible in all previously discovered palæolithic human skulls dating from the same period. This is particularly true of the basi-occipital region, the upper jaw, and the face-bones (p. 326). We are thus enabled to supplement our knowledge of Mousterian craniometry at several points and to correct it at others. This is the first case, for example, in which the foramen magnum has been preserved in human crania of the Mousterian type. It is found to be elongated, and is situated farther back than in modern inferior races. The character of the inion and its relation to the cranial base is revealed for the first time. There is no external occipital protuberance, but the linea nuchæ superior (torus occipitalis transversus) is well marked. The character of the surface in the nuchal region indicates that the muscles here were highly developed. The palate is relatively long, the sides of the alveolar arch being nearly parallel; that is to say, the palate is hypsoilid—one of the two characteristic simian forms. Boule also notes the

SKULL OF THE FOSSIL MAN OF LA CHAPELLE-AUX-SAINTS, AFTER RESTORATION OF THE NASAL BONES AND JAWS. AFTER BOULE, L'ANTHR., 20, P. 276, 1909



PROFILES OF THE CRANIUM OF A CHIMPANZEE, THE CRANIUM OF LA CHAPELLE-AUX-SAINTS, AND THAT OF A MODERN FRENCHMAN SUPERPOSED, AND WITH A COMMON BASI-NASAL LINE EQUAL IN LENGTH FOR EACH. BA, BASION; NA, NASION. AFTER BOULE, L'ANTHR., 20, P. 265, 1909.

Courtesy Smithsonian Institution

absence of the fossa canina. The nose, separated from the prominent glabella by a pronounced depression, is relatively short and broad. The lower jaw is remarkable for its size, for the antero-posterior extent of the condyles, the shallowness of the incisura mandibulæ, and the absence of chin.

Boule estimated the capacity of the Chapelle-aux-Saints skull according to the formulæ of Manouvrier, of Lee, and of Beddoe, obtaining results that varied between 1,570 and 1,750 cubic centimeters. By the use of millet and shot an average capacity of 1,626 cubic centimeters was obtained. Judging from these figures the capacity of the crania of Neandertal and Spy has been underestimated by Schaaffhausen, Huxley, and Schwalbe. By its cranial capacity, therefore, the Neandertal race belongs easily in the class of *Homo sapiens*. But we must distinguish between relative capacity and absolute capacity. In modern man, where the transverse and antero-posterior diameters are the same as in the skull of La Chapelle-aux-Saints, the vertical diameter would be much greater, which would increase the capacity to 1,800 cubic centimeters and even to 1,900 cubic centimeters. Such voluminous modern crania are very rare. Thus Bismarck, with horizontal cranial diameters scarcely greater than in the man of La Chapelle-aux-Saints, is said to have had a cranial capacity of 1,965 cubic centimeters.

The most remarkable thing about the astragalus is the special development of the articular surface for the lateral malleolus, development that recalls the condition in anthropoids and climbing mammals. This seems to indicate that, as among anthropoids, the foot of the man of La Chapelle-aux-Saints should repose on its external margin, also that the fibula was relatively more powerful than is the case among modern races. The calcaneum is characterized by its shortness and especially by the large dimensions of the lesser process (sustentaculum tali). The latter in its proportions resembles that in the Veddahs and in anthropoids.

Professors Boule and Anthony after an exhaustive study of the encephalon of the Chapelle-aux-Saints skull arrive at conclusions which may be summed up as follows:

Human characters: Large absolute volume; predominance of left hemisphere, indicating right-handedness (according to Bardeleben, orangs are right-handed, while gorillas and chimpanzees are left-handed); presence of two pre-sylvian branches; presence of an opercular system similar to that in man.

Intermediate or simian characters: General form; general simplicity of the convolutions; position and direction of the fissures of Sylvius and Rolando; distinctness and length of the parieto-occipital fissure; reduced frontal lobes, particularly in their anterior region; accentuation of the encephalic rostrum; primitive character of the third frontal (Broca's convolution, the seat of articulate speech); presence of a well-developed sulcus lunatus (simian groove, Affenspalte), according to Elliott Smith an incontestable index of inferiority; separation of the cerebellar lobes, exposing the vermiform process; direction of the medulla oblongata (more oblique from the front toward the back than in modern man, but less so than in anthropoids).

In short Boule and Anthony find the encephalon of the man of La Chapelle-aux-Saints to be a real human brain, on account of the mass of cerebral matter; but this matter still lacks the superior organization that characterizes modern man.

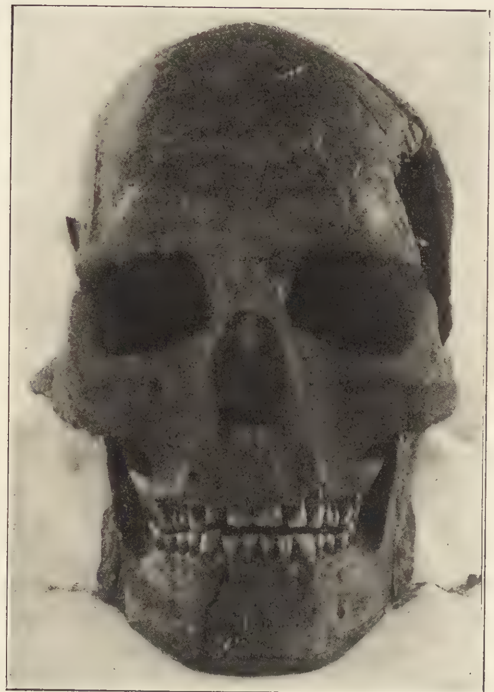
During the autumn of 1909 M. D. Peyrony, of Les Eyzies, had the good fortune to discover human remains of Mousterian age at two different localities in the department of Dordogne. The first find was made in a small cavern at Pech de l'Azé, 5 kilometers from Sarlat. Here in undisturbed upper Mousterian deposits was found the skull of a child 5 or 6 years old. About it were the numerous animal bones broken artificially, the teeth of the horse, deer, reindeer, and an abundance of Mousterian implements. The lower Mousterian deposit on which the skull rested contained fine implements of the Acheulian type.

M. Peyrony's second discovery was made in the rock-shelter of La Ferrassie near Bugue. La Ferrassie is a vast rock-shelter, whose ceiling fell before the close of the Quaternary. The various deposits are intact and easily distinguished by their color; each contains a stone industry, also bone objects, and fossil remains. The section at La Ferrassie comprises 5 archæological horizons: Acheulian, Mousterian, and lower, middle, and upper Aurignacian. It was between the Acheulian and Mousterian deposits and at a depth of 3 meters that an almost complete human skeleton was found. The associated fauna includes the mammoth, horse, reindeer, and *Rhinoceros tichorhinus*. Although in part crushed by the enormous weight of earth above, all the bones were in place with the exception of those of the right hand and foot, which had been displaced and partially destroyed, probably by some carnivore or rodent. The skeleton has been removed intact. Unlike the case of La Chapelle-aux-Saints, this was not an interment. The body was placed at one corner of the shelter and covered with branches or skins, perhaps a little earth, or all three of these combined. About the head and shoulders were three stones that might have served as weights. Gradually it was covered deeper and deeper by débris from the overhanging rocks and that left by succeeding Aurignacian populations. Its stratigraphic position is clearly defined. In 1910, M. Peyrony had the good fortune to find another human skeleton at La Ferrassie in the same horizon as the one discovered the previous year. The two skeletons were only one-half meter apart, vertex against vertex; and in both the legs were sharply flexed, the knees being drawn toward the chest; the elbows seemed to rest against the knees. The body had been placed on the right side and in the same axis as the other. The lower extremities are well preserved, but the skull was crushed. A more extended report as to the somatological characters of these two skeletons from La Ferrassie is awaited with much interest. It should not only confirm but also supplement existing data bearing on the osteology of *Homo primigenius*, as did the remains from La Chapelle-aux-Saints. All three specimens are now in the Paris Museum of Natural History. The latest report from the French caverns is that only a few weeks ago, Dr. Henri Martin discovered a nearly complete human skeleton in the Mousterian deposit at La Quina (Charente).

The Dordogne seems destined to maintain its lead in matters of palæolithic. Herr O. Hauser who made the important discovery of *Homo mousteriensis* at Le Moustier in 1908 was also rewarded with a rich harvest in 1909. At Combe-Capelle, near Montferrand-Périgord, he found on August 26 an adult male skeleton of Aurignacian age. The type, however, is of a higher order than that of his *Homo mousteriensis*, the difference being greater than might be inferred from its stratigraphic position. The remains had been interred, the pit being sunk into a deposit of Mousterian age. The stone implements found with the skeleton about the head, arms, knees, and feet are Aurignacian. For this reason Klaatsch suggests the name *Homo aurignacensis hauseri*. A number of snail shells were also deposited with the dead, probably as ornaments. Klaatsch classes *Homo aurignacensis hauseri* with the human remains from Brünn (Mähren) and Galley Hill, near London. All three skulls are long and narrow, markedly dolichocephalic; the other skeletal parts agree in type. Klaatsch also notes certain resemblances to the much later Magdalenian race, as represented by the skeleton found 20 years ago at Chancelade, also in the Dordogne. Although of rather short and powerful build, Klaatsch believes this Aurignacian race did not evolve directly from the Neandertal or Mousterian race.

If the Galley Hill skeleton is properly dated, and there is room for doubt on this point, we have the interesting phenomenon of two somatologically distinct races existing side by side in Europe for a long space of time. Such a possibility invests the Galley Hill find with new interest. According to Messrs. R. Elliott and Matthew Heys who found the nearly complete skeleton in 1888, it was in situ and came from a depth of more than 8 ft. in Pleistocene high-level (so-called middle terrace) river drift, which at Galley Hill is 90 to 100 ft. above the Thames. Professor Sollas believes the skeleton to be as old as the gravels and not an interment. The Galley Hill section reveals 8 ft. of gravel and sands, under which is a clay deposit 2 or 3 ft. thick. The skeleton was found in the clay deposit. According to Rutot this is the Strépyan horizon. In fact it furnished a mixed industry, including Strépyan as well as Chellean and Acheulian forms. Assuming that the Galley Hill man is as old as the deposit in which it was found, Keith attempts to measure its antiquity by the work done by the Thames since its high level-terrace was formed. An elevation of the land has caused the river to wear down its valley nearly 100 ft. But the whole amount of erosion is not accounted for without adding the 40 or 50 ft. that were cut below the present level and later filled up. The lowering and filling combined thus amount to about 175 ft. On the basis of the change in valley level which has taken place since Roman times, Keith feels justified in allowing "1000 years for every foot which the river has worn away or laid down." He thus arrives at an antiquity of 170,000 years for the Galley Hill remains.

Osteologically the Galley Hill man is much more closely related to the modern European than is *Homo primigenius*. He was of short stature and had a well-developed muscular system. A cranial capacity of 1360 cubic centimeters is a good average for one of his stature; a cast of the cranial cavity is said by Keith to reveal a highly convoluted brain essentially mod-



SKULL OF HOMO AURIGNACENSIS HAUSERI, FRONT VIEW

Courtesy Smithsonian Institution

ern in aspect. A peculiar feature of the cranium is its extreme dolichocephaly. The ilium is distinctly that of *Homo sapiens*.

The marked racial differences between the Neandertal and the Galley Hill type lead Rutot to believe that the men of Neandertal, Spy, Krapina, Le Moustier, and La Chapelle-aux-Saints are descendants of the primitive eolithic race with stagnant mentality represented at present by *Homo heidelbergensis* and possibly *Pithecanthropus erectus;* while at the close of the lower Quaternary there appeared a new race with progressive mentality represented by Galley Hill and later by Combe-Capelle and Brünn, to whom we owe the palæolithic industry. So that during the lower palæolithic there were two types of mankind in Europe: the waning eolithic type and the Galley Hill type, the latter becoming dominant in the upper palæolithic, and passing into the Cro-Magnon type before its close.

It was while making a careful study of the Aurignacian skeleton from Combe-Capelle that Professor Klaatsch formulated his interesting theory concerning the origin of the human race. He points out certain osteological features common to the gorilla, the Heidelberg man and the Neandertal races; all three he supposes to have sprung from the same stock. On the other hand, he finds features common to the Galley Hill or modern type and the orang, and concludes that they descended from the same stock. The resemblances to which Klaatsch calls attention are certainly striking and he deserves much credit for bringing them out so clearly. One should

SKULL OF HOMO AURIGNACENSIS HAUSERI, PROFILE

Courtesy Smithsonian Institution

not however lose sight of the myriad characters possessed in common by the Neandertal and Galley hill races; these are too numerous to be explained away as "convergence phenomena." Professor Klaatsch's theory has found little favor either at home or abroad. In fact, Keith who has made complete dissections of more than 80 anthropoids regards the orang as the least likely of all the higher primates to give rise to the human race. On the other hand he looks upon the chimpanzee and especially the gorilla as "descendants of a stock from which it is not difficult to suppose the primary human stock may have arisen."

Thus far the evidence bearing on the greater antiquity of man has been gleaned from the Old World. That which the New World has to offer may be dismissed in a few words as still being far from satisfactory. In a recent paper on "Skeletal Remains Suggesting or Attributed to Early Man in North America," Doctor Aleš Hrdlička, the somatologist of the United States National Museum, concludes that "thus far on this continent no human bones of undisputed geological antiquity are known." As regards South America, Ameghino et al. believe certain fire products found in the lower Pampean deposits of Monte Hermoso to have a human origin. A human atlas was also found in these deposits. To the fire-maker Ameghino gives the name *Tetraprothomo*. On the other hand, in the opinion of Outes, Lehmann-Nitsche, Steinmann, and others these fire products are simply volcanic scoria. Hrdlicka and Bailey Willis who recently visited the region in question are of the latter opinion; as is also Professor Boule, whose studies of similar volcanic phenomena in south central France adds special weight to his conclusions. Somatologically the human atlas which came from the lower Pampean deposits differs but little from those in modern man of the same region; and the age of the deposits themselves has not yet been determined with any degree of accuracy.

Yale University. GEORGE GRANT MACCURDY.

COMPUTING THE AGE OF TERRACE GRAVELS

THE occurrence of human remains in high level terrace gravels bordering modern streams gives great interest to estimates concerning the mode of their deposition and their consequent age. Originally it was supposed that streams like the River Somme in France and the Connecticut in America, had first filled up their troughs to the height of the present terraces and then when the supply both of sediment and water diminished had eroded the present channels 100 ft. or more below the level of the old terraces. This would, indeed, give an enormous antiquity to some of these terraces and to the objects found in them.

But more recent investigations put an entirely new aspect on many of these deposits. In Alaska it is found that, frequently, the glacial ice fills the valleys long after it has melted from the higher lands on the sides, so that streams of water flow between the ice and the sides of the valleys at a considerable height above the floor as it appears after the ice has melted away, producing what are called "Esker Terraces." In such cases broad valleys bordered by high level terraces are left free from gravel, creating the impression that they are valleys of erosion. This is certainly the case with the Connecticut valley, as shown by Professor Emerson's report to the U. S. Geological Survey. Recently I have been making investigation of two very evident examples of such terraces in Ohio where palæolithic implements are reported to have been found. These are in the valley of the River Styx in Medina County, Ohio, and of the valley of the Killbuck near Wooster, Ohio.

The terrace in the valley of the Styx has already been described in vol. 8, p. III, of the RECORDS OF THE PAST. In the Killbuck the case is very interesting. The present stream occupies a preglacial valley a mile or more in width at the bottom, which is almost as level as a house floor, and is often entirely overflowed after heavy rains. But for a long distance on the west side at an elevation of more than 100 ft. there are extensive gravel deposits to which the road makers have resorted from time immemorial for material to gravel the roads.

The deposits, now exposed in several places in pits where work is going on, are from 20 to 40 ft. in thickness, with an unknown depth still below. In one exposure a deposit of "till" or "boulder clay" 15 ft. thick has been shoved over the stratified gravel. Except in this respect, the conditions almost exactly duplicate those in the valley of the Somme at Amiens France, where so many palæoliths have been found and attributed to an extreme antiquity on the supposition that the present river has eroded all the gravel required to fill the space between the terraces on either side. In the glaciated region, at least, all such cases must be considered with reference to the possibility of their being "esker terraces" of comparatively recent age. In the case of the trough of the Somme, probably stagnant ice filled the valley for some time after it had melted from the higher lands

on either side. In case of the terraces on the Killbuck at Wooster, Ohio, it is evident that there has been very little erosion since their deposition, for the present stream has all it can do to keep its channel clear through the flood plain as originally uncovered by the melting of the ice which had filled it and protected it from the incursion of gravel deposits during the decline of the glacial period. All the earlier calculations drawn from the erosion of post glacial terraces must be revised in view of the facts now known concerning the possible manner of their formation.

George Frederick Wright.

Oberlin, Ohio.

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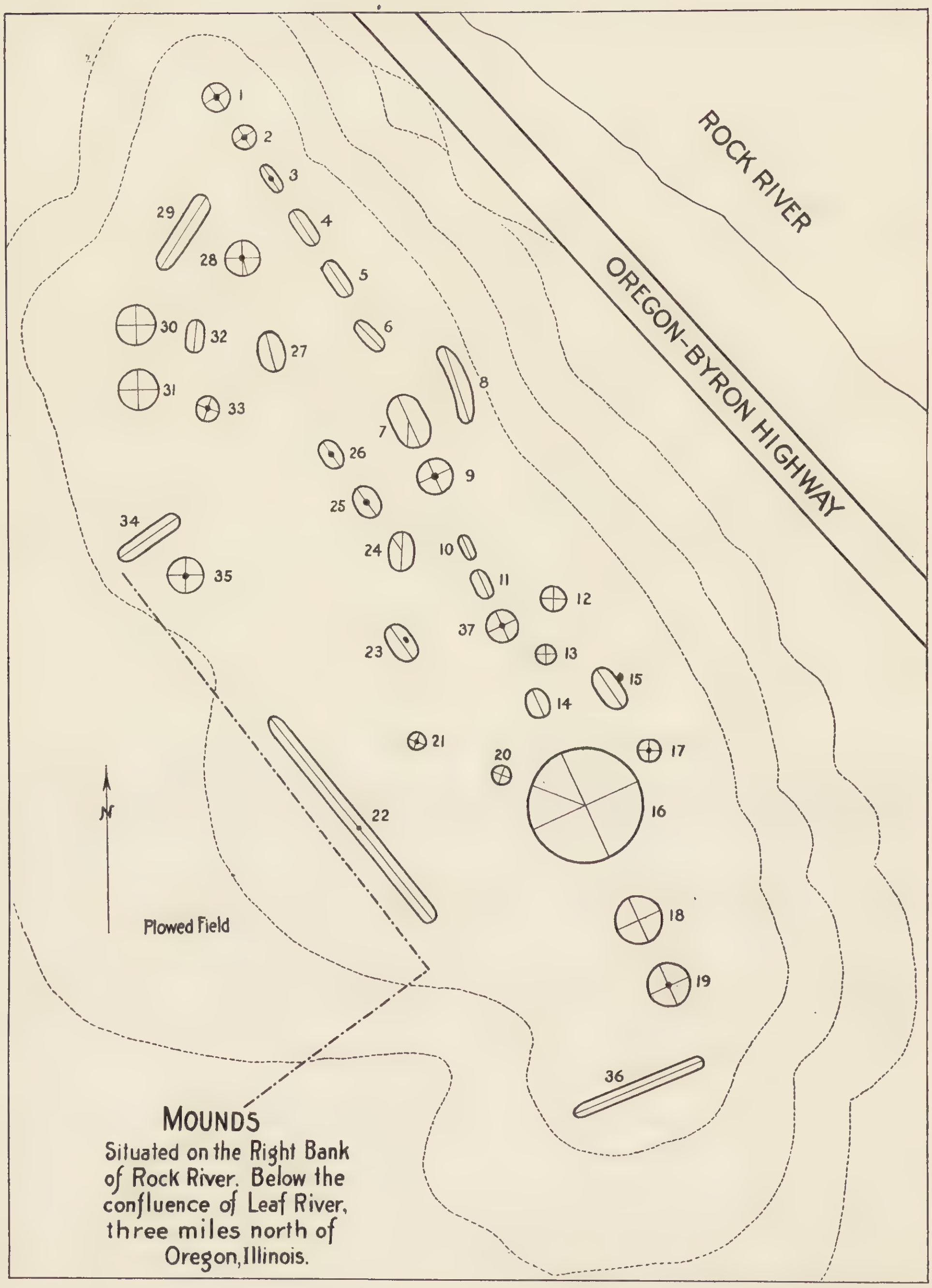
NEW BUILDING FOR THE OHIO STATE ARCHÆOLOGICAL AND HISTORICAL SOCIETY.—The Ohio State Archæological and Historical Society at its last meeting re-elected G. F. Wright, President; E. O. Randall, Secretary, and W. C. Mills, Curator. The museum of this Society has increased so rapidly through the Curator's excavations in the mounds of the State that it has outgrown its present temporary quarters in one of the university buildings. The legislature, therefore, has appropriated $100,000 to erect a building for the Society upon the university grounds. Plans for this are already made and the foundations will be laid this fall. The building will be 200 ft. long, and 3 stories high, fronting upon Main Street, on the south side of the entrance to the university grounds. The plan will admit of indefinite enlargement in the future. In addition to this the legislature considerably increased the appropriation for field work and general expenses.

Forty thousand dollars were also appropriated by the legislature to erect a fireproof building in Spiegel Grove, Fremont, Ohio, to preserve the library of Ex-president Hayes. This library consists first of a collection of 10,000 or 12,000 volumes on Americana. Sometime before his death President Hayes purchased the library upon that subject which had been collected by Mr. Clarke of Cincinnati. This with the additions made constitutes one of the most valuable collections for the study of American history that has ever been made. In addition to this the library contains the diaries of the Ex-president, begun when he was a mere boy, and an immense collection of political and military documents both printed and in manuscript. At present this library is in the old homestead, situated in a picturesque grove of 25 acres, preserved from the original forest through which runs the old Indian trail, followed also by General Harrison, leading from Lake Erie to the Ohio River. Through the generosity of Colonel Webb C. Hayes all this becomes the property of the Society upon the completion of the building which the legislature has provided.



MOUNDS
Situated on the Right Bank of Rock River. Below the confluence of Leaf River, three miles north of Oregon, Illinois.

THE MOUND-BUILDERS: A PLEA FOR THE CONSERVATION OF THE ANTIQUITIES OF THE CENTRAL AND SOUTHERN STATES

THIRTY-FIVE to 40 years ago (1871–76), stimulated by preparations then making for a government exhibit during the period of the Centennial Exposition, the question, "Who were the Mound-builders?" agitated not alone the scientist, but stirred the general public of the Central States to activity as no abstract speculation since that time has had the lure to do.

Hundreds of burial mounds located in the great central valleys were ruthlessly ransacked and left partly destroyed by scholars and vandals alike; the few trinkets found were for a time held as "curiosities" to be later scattered and lost, and the country press as well as the metropolitan dailies were filled with marvelous tales of giant men whose bones "crumbled to dust when exposed to air."

The secretary of the Smithsonian Institute, Professor Henry, writing in the year 1878 said: "Anthropology, or what may be considered the natural history of man, is at present the most popular branch of science. It absorbs a large share of the popular attention. . . . ."[1]

The passing of a decade marked a notable advance in the character of the work accomplished toward the solution of the problem. The Bureau of American Ethnology was established by the general government, and, under the direction of Professor Frederick Ward Putnam, the Peabody Museum of American Archæology of Harvard University initiated in Ohio, near Cincinnati, the first thorough and comprehensive work in the mounds, taking up and assisting the work of a careful local archæologist in the Little Miami valley, Dr. Charles L. Metz.

Previously there had been here and there in the Central and South Atlantic States some conscientious scientific work, conceived in the right spirit, but much valuable data had been destroyed by the uncurbed enthusiasm and greed of relic hunters. In one town which I could name, although I forbear out of regard for a newly awakened public conscience, it was, in 1876, a Sabbath pastime to open "Indian mounds" in the forenoon and in the afternoon to shoot the skulls thus obtained full of holes as a test of marksmanship.

The earlier work undertaken by the Bureau of American Ethnology in the mounds was admittedly marred by some very crude work.[2] Most

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[1] *Annual Report of the Secretary of the Smithsonian Institution for 1877*, p. 22.

[2] *Burial Mounds of the Northern Section of the United States.* Fifth Annual Report of the Bureau of Ethnology; p. 30, paragraph beginning 16th line from the bottom of the page. Same, p. 32, paragraph commencing 16th line from the top of the page. Same, pp. 36–37. Reference to Mound No. 16. This mound was opened from the top. There is no "sandstone" local to the district—it is limestone. It is not stated in what state of preservation were the logs of the vault, nor if any of the ill-odored earth was saved for analysis. Same, p. 37, it is stated that some of the logs had been peeled. Personally, I have examined several of these log vaults and in no instance was the wood sufficiently preserved to show whether peeled or not. Same, p. 37, 4th paragraph— "As there can be scarcely a doubt that the mounds of this group were built by one tribe, we have here additional evidence that the same people were accustomed to bury their dead in various ways," etc., etc. This is an assumption without one particle of

of the field work under the direction of Colonel Norris, forming part of the data upon which the late Professor Thomas based his conclusions, was such that some day the field must be reworked.

Large and important mounds, as the Grave Creek mound, the mounds mentioned and figured in Professor Thomas' paper[3] near Charleston in the valley of the Kanawha, and others, were but partially examined in an obsolete, blundering manner, by shafts sunk downward from the top.

Accurate and comprehensive information as to structure and contents of mounds cannot be obtained by this method. The structure must be laid open and examined by vertical sections over the entire area covered by the mound, and if it is desired to retain it as a prehistoric monument it may be rebuilt. Anything short of this gives but partial results which cannot become a basis for accurate deductons.

As a result of the work conducted in the northern part of the United States by the Bureau of American Ethnology for the solution of the mound-builder problem, in 1884 Professor Thomas published his tentative conclusion, that "all the mounds which have been examined and carefully studied are to be attributed to the indigenous tribes inhabiting this region and their ancestors," and "*nothing has been found connected with them to sustain or justify the opinion*, so frequently advanced, *of their great antiquity*."[4]

The decline of popular interest in the mound-builder question may be traced from this time, and the past 20 years have marked the decline in interest in the archæology of local or home fields nearly to the vanishing point in the central archæological district. It is true much has been accomplished in tbe southwest and in Central America, and in restricted limits in the Central States there has been much thorough scientific work of a high order,[5] apparently forecasting a revival of the popular interest, but the field

evidence to support it. Same, p. 41, lines 14, 15 and 16—"No opportunity was allowed to investigate the burial mounds . . . but slight explorations made in the larger mounds sufficed to reveal the fire beds so common in southern mounds, thus confirming the impression given by their form." Scientific deductions can not be based, and should not be accepted, on such superficial examination. Same, p. 41, last paragraph, reference to Northwestern Missouri—"The region has been but partially explored, *yet it is probable* the following examples will furnish illustration of most of the types to be found in it." Same, p. 56, mound 23 of the group near Charleston, a mound 25 ft. high, was left half-opened, notwithstanding it suggested unusual, perhaps crucial comparative evidence of great value. Same, p. 57, mound 31, another big mound, 25 ft. high, "was opened by digging a shaft 10 ft. in diameter from the center of the top to the base . . . at the depth of 25 ft., and on the natural surface was found what in an Ohio mound would have been designated an Altar. This was not thoroughly traced throughout, but was about 12 ft. long and over 8 ft. wide. . . . "

[3] *Burial Mounds of the Northern Section of the United States*, pp. 51–57.

[4] *Ibid.*, concluding remarks, pp. 108–109.

[5] Work of Professor Warren K. Moorehead in the Hopewell mounds near Chillicothe, Ohio, 1891–2. Work of Professor W. C. Mills, Ohio Archæological Society, in the Seip Mound, Ross County, Ohio. and in the Harness mound. Work of Professor Clarence B. Moore, Philadelphia Academy of Sciences at Moundsville, Alabama, 1905. Work of the Missouri Historical Society in the McEvers mounds, Montezuma, Illinois (partial examination). Work of W. C. Farabee and G. F. Will and H. J. Spinden in North Dakota, 1901–2. Space will prevent the mention of only a few more of the sources of the new evidence which has extended the archæological horizon. Work of Dr. J. F. Snyder at Virginia, Illinois and elsewhere. Work of Mr. W. Straley, at Nelson, Nebraska. Work of the University of Minnesota, Professor N. H. Winchell. Work of the Toronto University, Professor Henry Montgomery. Work of the Historical Department of Iowa in the Boone Mound, Des Moines, Iowa valley. Work of Mr. Robert F. Gilder and others in the Missouri valley near Omaha and in Wyoming. Work of the Wisconsin Archæological Society and the Minnesota Historical Society. Work of the Davenport Academy of Sciences in Iowa and Illinois. Work of Dr. Charles C. Abbott and Mr. Ernest Volk in the Trenton gravels. Work of Phillips Academy in the Ozarks, 1908. Work of the Peabody Museum of Archæology (Harvard University) in Ohio, Mississippi, Illinois, etc.

still suffers and is neglected because the waning enthusiasm has diverted to other fields of enquiry the generous financial support required for conducting comprehensive work in this field.

One result of the popular apathy not without its compensative features, is the preservation of some of the forgotten mounds intact or the remnants of others to the present time, and it is for the preservation of this remnant of our antiquities that this appeal, addressed especially to the people of Illinois and Iowa, is penned.

Wisconsin and Ohio have state organizations working toward the conservation of their antiquities; Missouri, and recently Indiana and Alabama, are awakening to the necessity for their conservation, while Illinois and Iowa remain inactive? Such action becomes more imperative now that at length there are signs of a revival of the old time popular interest in a question which, regardless of conclusions advanced and obstinately maintained in the face of a constantly growing accumulation of new evidence, is still not authoritatively settled.

The convulsing archæological joke of the XIX century whereby the Bureau of American Ethnology inadvertently became the discoverer of the most antique copper plates ever found in a mound in the United States is well remembered.[6] The ingenious interpretation or explanation advanced by Doctor Holmes[7] and concurred in by the late Professor Thomas to account for the presence of these antique inscribed plates in this mound, and to bring this unwelcome evidence of contact with the prehistoric culture of Central America up to the recent chronological horizon taken in the conclusion quoted, is neither convincing nor satisfactory.

The graves of Costa Rica and of Cheriqui Columbia[8] yield evidence of the ancient metal workers in some ways quite comparable with that of these plates, and as for the alleged "angel" *motif* this assumption falls entirely when comparison is made with the identical wings of the Eagle plate figured.[9]

It is suggestive to note in this connection the resemblance in outline this eagle plate bears to a stone mound in Putnam County, Georgia, 6½ miles south of Etonsville, figured by C. C. Jones, Jr.[10]

Scattered over the States of Illinois and Iowa are many typical mound groups that because they are typical of certain phases of local culture more

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[6] *Burial Mounds of the Northern Section of the United States*, p. 98.

[7] *Ibid.*, p. 105. "That these plates are not the work of the Indians found inhabiting the southern section of the United States or their direct ancestors, I freely concede. That they were not made by an aboriginal artisan of Central America or Mexico of ante-Columbian times, I think is evident, if not from the designs themselves, certainly from the indisputable evidence that the work was done with metal tools." This very positive position is somewhat modified or more cautiously worded in the 12th Annual Report of the Bureau, p. 308, as follows:—"That these plates are not *wholly* the work of the Indians found inhabiting the southern section of the United States or their direct *descendants* is admitted. That they were not made by an aboriginal artisan of Central America or Mexico of ante-Columbian time I think is *probable*, if not from the designs themselves, from the *apparent evidence* that the work was done *in part* by hard metallic tools."

Also, *Science*, April 11, 1884. Wm. H. Holmes.

[8] Bulletin 3, Bureau of Am. Eth., *The Use of Gold and Other Metals among the Ancient Inhabitants of Cheriqui*. Wm. H. Holmes.

[9] *Burial Mounds of the Northern Section of the United States* p. 105, fig. 48.

[10] Annual Report of the Smithsonian Institution for 1877, *Aboriginal Structures in Georgia*, Charles C. Jones, Jr., p. 280, fig. 1.

or less related should be preserved intact, and the people of Illinois should take immediate action toward this end.

A chart of a typical group of mounds is presented on page 334. The group, located on the right bank of Rock River, about midway between Oregon and the village of Byron, Illinois, covers the summit of a sightly eminence, an isolated fragment of the gravel terrace of the valley, about a mile below the mouth of Leaf River, and comprises mounds of 3 types, the wall-like, the ovoid and the conical.

Doctor Albert J. Woodcock of Byron, Illinois, has very pleasingly described this group,[11] but as located on a "bluff," which is not altogether accurate.

The group is unnamed in the local annals in so far as known, and it is suggested that when it shall have been conserved and parked some designation may be applied to this beautiful spot suggestive of the brilliant golden hue of its gravel shore as seen from the blue water of the Rock.

A species of wild petunia was growing about the mounds when visited in the summer of 1909, and few mounds had been seriously injured.

There are a few other mound groups remaining in Illinois. One in Jo Daviess County contains an emblematic mound. There are none of the ovoid mounds here and the long mounds do not approach in length those we term "wall-like" elsewhere. Twelve are conical and 38 are of the elongate type. There are two small circular depressions and an elliptical hut-ring. At various points appearances indicated that a mound had been destroyed through cultivation of the land.

Formerly (in 1895) I had designated this the Aiken group, from a station of the Burlington Railroad, but this station has been abandoned and the name is now without meaning. The group occupies the bluff summits and terrace and shore levels north of Small-Pox creek, near Galena Junction, Illinois, in the Mississippi Valley, in Jo Daviess County, Illinois. The recent or historic Fox Indian name of this stream is given as Little Macaubee,[12] and this would not be an inappropriate designation to apply to this group of mounds.

Within Jo Daviess County alone are very many mound groups equally typical and as deserving of preservation, and the time is nearly past when reliable data can be compiled relative to mounds that have been obliterated. Many of these mounds without question, if we are prepared to accept the evidence of comparative research in the mounds of the British Isles and northern Europe, in a more humid climate, date back to the beginning of the Christian era, while some were erected within historic times, but the day has passed when the vague speculations of 30 years ago, based upon the outward form of mounds can be considered.

WM. BAKER NICKERSON.

Epworth, Iowa.

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[11] *Forest and Stream*, February 27, 1909, *Ancestors of our Indians*, Dr. Albert J. Woodcock.

[12] *History of Jo Daviess County, Illinois, and the Northwest.* H. F. Kell and Company, Chicago, 1878, footnote on p. 277.

LEFT VIEW OF SKULL OF "VANCOUVER MAN," SHOWING STONE ARROW-HEAD EMBEDDED IN PARIETAL. NOTE LOW FOREHEAD

NOTE ON A SKULL WITH EMBEDDED ARROWHEAD

WHILE on a trip in the Pacific Northwest in August, 1909, Mr. James H. Cook secured for the writer a human skull of unusual interest to the anthropologist, or even to the layman. This skull is of a primitive type, but is of especial interest from the fact that a large stone arrowhead, which evidently caused the man's death, is firmly embedded in the anterior part of the parietal, directly over the ear. The skull was found several years ago by Mr. H. F. Argyle, near Vancouver, B. C., ". . . in the dense forest, lying almost exposed to the eye. Evidently it had been buried in a rock mound . . ."—to quote his own words.

The arrow had evidently been fired from above, probably from a tree, and the force with which it was driven can readily be appreciated from the fact that nearly an inch of the flint head—which is about an inch in breadth and two in length—entered the bone.

The skull is that of an old man, and the sutures are mostly closed. The extreme wear of the teeth would indicate not only age, but very hard, tough food, such as nuts and poorly cooked roots and meat. The brow is very low and the skull is proportionally narrow through the temples, but the supraorbital ridges are not especially prominent. The cheek bones are fairly high and rather heavy. The conditions of the occiput would indicate a large and powerful neck. The skull is broad and rather flat perpendicu-

TOP VIEW OF SKULL OF "VANCOUVER MAN," SHOWING EMBEDDED STONE ARROWHEAD. NOTE PROTRUDING FACE

larly behind, but does not have the appearance of artificial distortion such as is common among the "flathead" Indians of this region.

The skull, though excellently preserved, shows no trace of fossilization other than the weight, which is probably due to the unusual thickness of the bone.

A number of interesting human skulls have been found in various parts of the United States, a few of which approximate the "Vancouver Man" in baseness of type, but this is the only known specimen, so far as the writer has been able to ascertain, of human remains containing a stone arrowhead driven into the bone.[1]

[1] Although the number of human skulls found with arrowheads still in them is limited, yet there have been a few such found. Perhaps the best known is the one from a mound in Illinois. This will be found pictured in the *Handbook of American Indians*, Pt. I, p. 90. (Bull. 30, Bureau of American Ethnology.) We have in our possession a buffalo skull with an arrowhead still resting where it penetrated the bone. [EDITOR.]

Our modern Indians of the plains insist that they do not know, and never have known, as far back as their traditions reach, the art of making arrow- and spearheads from stone. They used them when they found them, to be sure, and have some very queer ideas as to how they were made, but before they could secure iron from the white man, they depended almost entirely upon bone for their arrow- and spearheads.

Apparently the skull here described is that belonging to a man of a race earlier than our modern coast Indians.

HAROLD JAMES COOK.

Agate, Nebraska.

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EXCAVATIONS IN THE SILVA LAURENTINA.—Queen Helena of Italy, well known as a promoter of archæological investigations, has recently taken as her field of work the royal shooting forest along the coast between Lavinium and Ostia. It appears that the ancients objected to sea-bathing in the open, for there are hundreds of *thermæ maritimæ* along the coast with *piscinæ* and swimming pools in which the water seems to have been warmed. Some basins accommodated but one family, while others had room for 100 or more bathers. The lead water pipe inscribed with the name of Marcus Aurelius found 3 miles inland could hardly have supplied drinking water for the bathers and villa owners. Every villa found had its reservoir for rain water, which was probably used for watering the garden and for lower domestic purposes. The vexing problem is "How could the owners of these innumerable *thermæ maritimæ* provide enough seawater to fill the swimming ponds, and to renew the supply from time to time; since the bath houses lie at a higher level than the sea?" The double-action hydraulic pump discovered at La Chiaruccia may give the clue. But it would take an army of slaves to work pumps enough to get the supply.

The Silva Laurentina was used by the Emperors for the same purpose as now by the Kings—for a royal game preserve. This is shown by the discovery at Vicus Augustanus of an inscription stating that two officers of the Imperial guild of gamekeepers and foresters had made a present to the Guild of marble or bronze statues of their sovereign, to be placed in the *schola* or meeting place of the Corporation. This *schola* has probably been found. "It is a square apartment with the door opening on the forum or piazza of the *vicus* and surrounded by a colonnade of 12 slender columns of bigio morato, which have been found lying whole or in part in fragments on the marble floor." This Guild also had a species of life insurance organization for the purpose of providing proper funerals and funeral anniversary celebrations.

A villa was excavated last spring. The living rooms are in one wing and the bathing rooms in the other. Its principal feature is a square peristyle with a fountain in the center. The builder of the villa belonged to the Scribonia gens. His name appears in a fragmentary inscription which must have measured 15 ft. long, and must have been attached to a mausoleum, the foundations of which are near the gate of the villa.

BOOK REVIEWS

THE MIND OF PRIMITIVE MAN[1]

DR. FRANZ BOAS in his recent book on *The Mind of Primitive Man* has brought together his conclusions based on a very wide range of observations at first hand on primitive peoples. Perhaps no other man has had such a variety of opportunities to prepare him for the consideration of such a difficult problem. The result is that Dr. Boas has given a very sympathetic and comprehensive view of the subject. The book is based on the course of lectures delivered before the Lowell Institute of Boston and the National University of Mexico in 1910–1911.

In the first chapter the difficulty of approaching the subject with an unbiased mind, on account of race prejudice, is taken up so as to clear the field and make a rational consideration possible. "We have found that the unproved assumption of identity of cultural achievement and of mental ability is founded on an error of judgment; that the variations in cultural development can as well be explained by a consideration of the general course of historical events without recourse to the theory of material differences of mental faculty in different races. We have found, furthermore, that a similar error underlies the common assumption that the white race represents physically the highest type of man, but that anatomical and physiological considerations do not support these views."

Regarding the influence of environment on the skeleton of man he thinks that civilization has affected races of men as domestic animals, so that "the human race in its civilized form must be compared, not with the forms of wild animals, but rather with those of domesticated animals," and that "a somewhat detailed study of the conditions in which various races are found suggests that at the present time, even among the most primitive types of man, changes incident to domestication have taken place almost all over the world." The 3 distinct causes bringing about different types in domesticated animals are first, "change of nutrition and mode of life; secondly, conscious selection; and thirdly, crossing" (p. 70). These same points must be considered in the different race developments. This leads him to the "conclusion that environment has an important effect upon the anatomical structure and pnysiological functions of man; and that for this reason differences of type and action between primitive and civilized groups of the same race must be expected. It seems plausible that one of the most potent causes of these modifications must be looked for in the progressive domestication of man incident to the advance of civilization."

Another influence which has to be considered is heredity. Dr. Boas calls attention to the development of distinct local types where small groups

[1] *The Mind of Primitive Man.* By Franz Boas. Pp. x, 294. $1.50 net. New York: Macmillan Company. 1911.

are isolated, a condition which existed in the early history of mankind to a vastly greater extent than in later times. All things considered, he concludes that "the differences between types of men are, on the whole, small as compared to the range of variation in each type."

Turning from the physical to the mental traits of primitive man, a more difficult problem is presented. The point of view of a civilized man is so different from that of a primitive man and the different points of view from which various primitive races look at a subject are so different that we misjudge their mental ability. He gives an incident which came to his personal attention on the coast of Vancouver Island. Of the people there "Sproat says, 'The native mind, to an educated man, seems generally to be asleep. . . . . On his attention being fully aroused, he often shows much quickness in reply and ingenuity in argument. But a short conversation wearies him, particularly if questions are asked that require efforts of thought or memory on his part. The mind of the savage then appears to rock to and fro out of mere weakness.' Spencer, who quotes this passage, adds a number of others corroborating this point. I happen to know through personal contact the tribes mentioned by Sproat. The questions put by the traveler seem mostly trifling to the Indian, and he naturally soon tires of a conversation carried on in a foreign language, and one in which he finds nothing to interest him. As a matter of fact, the interest of those natives can easily be raised to a high pitch, and I have often been the one who was wearied out first." His conclusion is that the functions of the mind are the same in all races but the degree of development may differ, and that we are not able "at the present time to form a just valuation of the hereditary mental powers of the different races. A comparison of their languages, customs, and activities suggests that their faculties may be unequally developed; but the differences are not sufficient to justify us to ascribe materially lower stages to some peoples, and higher stages to others."

The author does not think that language furnishes "the much-looked-for means of discovering differences in the mental status of different races" and he considers that many of the cultural traits common to widely separated races may have developed independently, while some possibly go back to a common origin at an early date, while others have been obtained by transmission.

From the evolutionary point of view he concludes that people in an advanced stage of civilization must not necessarily have passed through all the stages of development which "we may gather by an investigation of all those types of culture which occur all over the world" (p. 184). Also that industrial development is always that of increasing complexity. "On the other hand, human activities that do not depend upon reasoning do not show a similar type of evolution" (pp. 193–194). "If once it is recognized that simplicity is not always proof of antiquity, it will be seen that the theory of the evolution of civilization rests to a certain extent on a logical error." "Thus the question with which we began our consideration—namely, whether the representatives of different races can be proved to have developed each independently, in such a way that the representatives

of some races stand on low levels of culture, while others stand on high levels of culture—may be answered in the negative."

Probably the most interesting chapter is that on Some Traits of Primitive Culture. In this chapter Dr. Boas considers the mental re-actions which distinguished primitive and civilized men of all races. The different mode of thought of the two is largely due to the difference in the "character of the traditional material with which the new perception associates itself" (p. 203). Remarks on the origin of different customs, taboos and folklore give added interest and value to the chapter.

Dr. Boas' final conclusion is that "the change from primitive to civilized society includes a lessening of the number of the emotional associations, and an improvement of the traditional material that enters into our habitual mental operations."

It is interesting to note the tendencies of archæologists and students of primitive anthropology to project the conclusions gained from the study of the past into the future, thus bringing these subjects from the dead past into the living present. Dr. Petrie's *Revolutions of Civilization* points out our position in the present cycle of civilization and the problem presented for the future. In like manner Dr. Boas, from a study of primitive culture and the development of the primitive mind, concludes his volume with a statement of Race Problems in the United States, closing with an appeal for greater tolerance of forms of civilization different from our own.

FREDERICK B. WRIGHT.

THE ABORIGINES OF MINNESOTA[2]

MINNESOTA is taking the lead among all the states of the Union in collecting and preserving the records of its prehistoric monuments and people. Though among the younger of the states, it has been peculiarly favored by having a citizenship ardently devoted to the immaterial as well as to the material elements of the national wealth. Alfred J. Hill, early connected with a survey department of the land office of the state, from the start devoted much of his time and all of his fortune (amounting to $16,000.00) to collecting the facts bearing on the aboriginal history, and from the first became Secretary of the Minnesota Historical Society. Not content with what he could collect with his own hand and observe with his own eyes, he associated with him Mr. T. H. Lewis, whose expenses he paid until his own death in 1895. Mr. Hill published very little himself, it being sufficient for him

[2] *The Aborigines of Minnesota:* A Report Based on the Collections of Jacob V. Brower, and on the Field Surveys and Notes of Alfred J. Hill and Theodore H. Lewis. Collated, Augmented and Described by N. H. Winchell. Illustrated by 36 Halftone Page Plates, 26 Folded Inserts and 642 Figures Inserted in the Text. St. Paul, Minnesota Historical Society, 4to. Pp. xiv, 761.

to have the facts brought to light through his associate Mr. Lewis, who was a prolific writer for the press. Upon the death of Mr. Hill, the work was taken up and carried on with great assiduity by Mr. J. D. Brower. Upon Mr. Brower's death in 1905, the great mass of material collected by these enthusiastic archæologists and historians fell into the hands of Professor N. H. Winchell, who, as the title page informs us, collated, augmented, and described the material of his predecessors. But he has done more than that. He has prefaced the volume by a chapter upon the Pre-Indian Inhabitants of Minnesota (which, by the way, was first published in the RECORDS OF THE PAST, vol. vi, pp. 145–157, 163–181) and the Aboriginal Geography of Minnesota. It is worthy of note that as a geologist of highest reputation Professor Winchell accepts the argillite implements of Trenton, N. J., and the skeletons found in the loess at Lansing, Kansas, as both being of glacial age. Indeed, in his further speculation concerning the distribution of the various Indian tribes his belief in glacial man comes to his assistance in an interesting manner.

As is well known, the original distribution of the Indian tribes when they first came in contact with the whites presents a very complicated problem. The difficulties of the problem are relieved to a considerable extent, however, by the supposition that glacial man was driven south from the whole region of the Northern United States and compelled to continue his existence on the southern border, and that from there he slowly reoccupied the ground. He is inclined to accept the theory of Dr. Cyrus Thomas that the Mound Builders, both of the Ohio Valley and of Minnesota and Wisconsin, belong to the Dakota tribe who were driven out from the Ohio Valley by the Lenni Lenape (or Delawares) sometime before the discovery of America by Columbus. The Cherokees are linguistically allied with the Dakotas and retained their occupation of the Appalachian Mountains in North Carolina until they were finally transported west of the Mississippi River by the United States. The Dakotas or Sioux, on the other hand, fled down the Ohio River and ascended the Mississippi and the Missouri and continued there, as did the Cherokees in the South, their habits of mound building.

But it would seem either that the mammoth lingered longer in the Northwest than it did in the Ohio Valley or that there were two periods of Dakota occupation in the Northwest, one earlier and one later than the Ohio period; for mammoths' tusks are found in the earlier Wisconsin mounds while they are absent from those of the Ohio Valley. The age of the later mound-building dynasty he does not consider to be more than 500 years, but that of the previous dynasties was much greater.

The wealth of material in this volume bearing upon the physical characteristics of the aboriginal inhabitants of Minnesota and upon their mode of life and their progress in the arts is unparalleled. For all time it will be a storehouse to which the students of the history of the American Indians must go for information of every sort.

EDITORIAL NOTES

FRAGMENTS OF ANCIENT SCULPTURE FROM SORRENTO, ITALY.—From Sorrento are reported fragments of ancient sculpture which probably decorated the Parthenon destroyed in the VI century. Professor Spinazzola has, in his researches at this point, found numerous pieces of pottery, a staircase partly covered in porphyry and lead pipes inscribed in Latin.

SARCOPHAGUS FROM NEAR ROME.—A sarcophagus lately discovered at Torre Nova on the Via Labicana comes, according to M. de Ridder, from Asia Minor. It has 3 panels sculptured in relief with scenes from the Eleusinian Mysteries, including the purification of an initiate by an hierophant in the presence of the Sacred Triad, Iacchos and Hecate. The initiate seems here to be Heracles.

ANTHROPOLOGICAL EXPEDITION TO NEW GUINEA.—The Committee for Anthropology at Oxford is about to send an expedition for anthropological research to the D'Entrecasteaux group, off the eastern end of New Guinea. The leader will be Mr. D. Jenness, of Balliol College, formerly of the University of New Zealand.

WORK AT OSTIA.—Director Marino Vaglieri of the National Museum at Rome has opened a number of Republican tombs at Ostia. In the Roman theater he found a fountain statue of Aphrodite. This, like the Townley Venus found at Ostia and now in London, resembles the Venus of Arles.

A MITHRAS SANCTUARY FOUND NEAR STRASBURG.—"The discovery of a Mithras sanctuary is reported from Königshoven, near Strasburg. The building, to judge from the fragments recovered, must have contained numerous altars, inscriptions and statues. The sandstone figure of a lion, almost life size, was found as well as a number of small figures of animals. A very interesting inscription states that Celsinius Matutinus, a veteran of the Eighth Legion, had caused the image of the deity to be repainted at his own expense. The state of the remains points to intentional destruction of the sanctuary."

ANOTHER FRAGMENT OF THE PARTHENON SCULPTURES IDENTIFIED.—Dr. Jan Six, a descendant of Rembrandt's Burgomaster Six, thinks that he has recently located another fragment of the Parthenon pediment groups in the Royal Museum of Stockholm. It is a female head which has borne the arbitrary name of "Dejanira." It has the same characteristic blocked modeling as the head of the "Theseus" in London. This new marble agrees thus with the Duc de Laborde's female head in Paris, which some scholars believe to be the remnant of the Victory who drove Athena's car in the west gable. This resemblance is, in fact, the clinching argument for the attribution of both the detached heads to the the studio of the Parthenon sculptors.

ROMAN AMPHITHEATER AT PARIS.—The municipality of Paris recently came to terms with the owner of the site of the *Arènes de Lutèce*, or Roman Ampitheater, and intends go make it more accessible to the public. The ampitheater was built in the II or III century A.D., near the summer residence of the Roman governor, remains of which are to be seen in the garden of the Musée de Cluny. The ellipse measures 180 ft. by 150 ft. It has been extensively restored.

FIND OF COINS IN DENMARK.—A find of coins and ornaments which, in the opinion of the Director of the Copenhagen Museum, date from the end of the X and beginning of the XI century has been made at the village of Terslev in South Seeland. Five hundred coins, some with Arabic, some with Anglo-Saxon incriptions, were found, and also bars of silver, a neck-ring of gold and silver wire, bracelets, a long chain, ornamented silver bows and a silver dagger with chain attached. It is thought that these were buried in time of war.

ROMAN FORT AT CAPPUCK.—The Roman fort at Cappuck on the Oxnam Water, near Jedburgh, is now being excavated by the Scottish Society of Antiquaries assisted by a grant from the Carnegie Fund. It is hoped that this work will help to clear up some of the problems connected with the Roman occupation of Scotland. "The ditch and rampart of the fort have been already uncovered and the examination of the interior is being rapidly proceeded with." Mr. G. H. Stevenson of Oxford University and Mr. S. N. Miller of Glasgow University are in charge.

COINS FROM CORSTOPITUM.—A find of 159 gold coins and 22 bronze ones was reported early in September from the site of Corstopitum. The coins were in a bronze jug and are in a good state of preservation. Thirteen emperors and other imperial persons are represented. The latest date is 159 A. D. The tombstone of a Palmyrene soldier is also reported from this site. He had retired, and had reached the age of 68 at the time of his death. It has been suggested by Professor Haverfield that Corstopitum was a depot for the armies working in the north and that the enclosure, tentatively called the "Forum" was an enclosure for the cattle necessary for provisioning the armies.

FURTHER EXCAVATION OF A BARROW NEAR PETERBOROUGH, ENGLAND.—Last year a sepulchral barrow at Eye, near Peterborough, England, was opened by Mr. E. Thurlow Leeds. A small hand-made pot of coarse ware was all that was found then, but this year Mr. Leeds has been able to investigate further, this time finding the skeleton of a man. He lay in a hole cut into the gravel 6 ft. below the surface. He was on his right side with head to the southwest, arms bent upward with hands near his face and legs bent also. No objects were found to date it, but it is supposed to be a bronze age burial before cremation was adopted, *i.e.*, before 1000 B. C.

LATE BYZANTINE INSCRIPTION AT SERAI-INI.—Professor William Ramsay in June of this year visited again Serai-ini where he last year discovered an interesting inscription of late Byzantine date. On his recent visit he was able to make out the one missing word, thus giving the inscription a complete text. The inscribed stone was the lintel above a tiny church with doorway about 1 ft. 9 in. wide. Such tiny churches were probably monumental, he thinks. The letters are rudely engraved. He reads the inscription thus:

"The church of the [Mother of God?] at Abedos was constructed by the hand and toil of the [deacon?] Acacius and Paulus at the defeat of Bardas Phokas in the reign of Basil and Constantine. Pray for us."

LAKE-DWELLINGS IN HOLDERNESS.—At a June meeting of the Society of Antiquaries (London) Mr. Reginald Smith read a paper on the ancient lake-dwellings discovered at Ubrome and elsewhere in Holderness. The best example was known as West Furze and consisted of two floors or platforms made of tree-trunks laid horizontally, packed with brushwood and held in place by piles driven into the peat or gravel. The upper floor yielded the only piece of metal found on the site—a spearhead of the bronze age—and contained piles sharpened with a metal tool. Those below were trimmed in a primitive fashion with stone axes, probably in the neolithic period.

Another site was Round Hill. A number of flint flakes as well as tools of other stones, were recovered from both sites. Bones of dog, pig, ox, red-deer, sheep, horse, beaver, cormorant and wild duck have been identified. The pottery is mostly of the early iron age, without ornamentation and made without the use of a wheel.

BYZANTINE SANCTUARY NEAR PISIDIAN ANTIOCH.— Professor W. H. Ramsay this year discovered the holy place of Men Askaênos on the summit of a mountain fully 5,000 ft. above sea level about 4 miles east of Yalowadj and about the same distance from the ancient city of Pisidian Antioch. There was simply an altar 66 ft. by 41 ft. within an open oblong space about 241 ft. by 136 ft., surrounded by a wall 5 ft. thick. There was a theater—or possibly more properly a stadium—close by and also a church. The church was built from stones taken from the hieron, one of which bears an inscription to Men Askaênos.

From some inscriptions, partly indistinct, previously found Professor Ramsay had argued that there was an association to uphold the state religion and to put down Christianity, and that Antioch was made a center of this pagan revival and anti-Christian movement; that the Christians, if they wished to escape persecution, had to perform a ceremony of compliance with the forms of this association. The inscriptions here confirm him in his views. One, for instance, records such a ceremony performed by a whole family.

EGYPTIAN RELICS IN RUSSIA.—A Russian scholar, Professor B. Touraieff, has drawn attention to a number of small Egyptian antiqui-

ties found in Russia. The northern shores of the Black Sea were early in communication with Egypt; here scarabs, miniature figures of gods such as Bes, Harpocrates and Thoth, armulets and ornaments of Egyptian design have been discovered. The Crimea also has yielded some such relics. Most are not earlier than the Saite dynasty. Some are accompanied by what seem to be imitations made on the spot. Similar objects are now being found in the south of Russia proper. Professor Touraieff mentions examples of figures of Osiris, ushabtis, scarabs and engraved cylinders found in the Government of Kieff and other provinces. "He explains their presence first by the wide spread (now beginning to be recognized), of the worship of the Alexandrian divinities and next by the existence of archæologists or collectors of antiquities in the Greek towns of the Crimea. Many of the smaller objects, he thinks, were brought into Russia for magical or superstitious reasons; he quoted a Russian word for finger-rings with seals engraved on stones therein which signifies 'beetle,' and was used in the Crimea so far back, he assures us, as the XIV century. This seems good evidence, not only that the importers of Egyptian scarabs were quite aware of their use, but also of the fact that the engraved scarab was, in its native country, used as a signet and as nothing else."

THE ARCHÆOLOGICAL PARK AT ROME.—In the *Athenæum* for October 7, 1911, Rodolfo Lanciani explains the purpose of the scheme for the new Archæological Park at Rome. "The object of the law," he says, "is to secure—for archæological, historical, æsthetic and artistic reasons—as much classic ground as the 6½ million lire [about $1,300,000] placed at our disposal will allow us to rescue within certain limits of space set down by Parliament. Whether there will be a margin left for the actual laying-out of a park with groves of classic trees and avenues and shady lanes connecting the various points of interest is a matter of secondary importance. . . . . I am glad to state that by careful management of the funds of the Royal Committee, of which Guido Baccelli, the veteran benefactor of Rome, is the President, 600 acres have already been secured and that the main outlines of the Park have already been laid out. It will be opened, undoubtedly, in the spring of the coming year.

"The 'Passeggiata Archeologica,' as the Park is popularly called, includes the whole length of the Sacra Via, from the Capitol to the Coliseum, the Imperial Fora, the Palace of the Caesars, the Baths of Titus and Trajan, the northern and western slopes of the Cælian, the eastern and southern slopes of the lesser Aventine and the valley between these hills, from the Circus Maximus to the 3 gates of the Aurelian Wall, the Metronia, the Latina and the Appia. . . . . The Palace of the Caesars, the Forum, the Amphitheater, the Temple of Claudius, the Baths of Caracalla, the Servian walls, the Nyphæum of Juturna, the crypt of the Scipios, the Columbaria of Hylas, those of the Vigna Codini, the great gates of Aurelian and Honorius, speak of the golden days of pagan Rome, just as the venerable churches of SS. Giovanni e Paolo, of S. Gregorio, of SS. Nero e Achilleo, of S. Cesario, of S. Sisto Vecchio speak of the golden days of Christianity.

But how many more interesting relics of both ages may still be found under the sacred soil! . . .

"The main difficulty to be overcome was to lay out the ground without interfering with traffic. . . . The Park *must* be cut into 4 sections by these two lines, which must remain free for traffic by day and night. . . . These public roads will be so concealed by green lines of shrubs and trees and by undulations of the ground, that visitors to the Park will hardly be able to notice them. . . . Six thousand trees have already been planted. . . .

"The *clou* of the scheme is the reconstruction of the classic garden of the Baths of Caracalla, which once occupied the space between the Caldarium and the west enclosure, where the reservoirs for hot and cold water were placed. It is a flat stretch of ground 1200 ft. wide, 600 long, once cut into squares by a network of paths crossing eaching other at right angles and lined with walls of laurel, myrtle and box. The lines of the paths are, fortunately, marked by the skylights giving light and air to the subterranean passages connecting the central building with the reservoirs. To gain this end, we must remove a mass of rubbish estimated at 150,000 cubic yards and dump it half a mile off into the hollow of the Decennia Palus (the marsh of Decenniæ), outside the Porta Metronia. The double line of portable railway between the Baths and the marsh is already in working order. It is possible that valuable archæological discoveries may be made in the course of this great excavation.

"The design of the railing enclosing the Park has been taken from a fresco painting at Pompeii. There will be nearly 3 miles of it. The entrance gates at la Moletta (ad Septem Vias) have likewise been imitated from those of Hadrian's Villa."

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